

ADVANCED MANAGEMENT

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Problems of Post-War Readjustment*

By DONALD DAVENPORT

Chief, Employment and Occupational Outlook Branch, Bureau of Labor Statistics, United States Department of Labor

NO one questions that the right to a job has become firmly entrenched as a modern social conviction. For the years since the depth of the great depression have demonstrated both the drastic consequences of mass unemployment, and the possibility of securing full employment through direct social action. We know now that when the collective effort is mobilized towards a common goal, as it is during a war, practically nothing is impossible. We can, if we will, accept as our post-war goal the establishment of our economy on basis of full employment.

It is a truism that the first step in planning is to define the problem. This involves collection of data on actual trends during the war in such factors as the total labor force and its components, employment and unemployment. It also requires a marshalling of the best-informed estimates of technical experts as to probable shifts in these factors in the post-war transitional period, in order to anticipate their repercussions throughout the economy during both the immediate and the longer-run post-war periods. And it involves an investigation of current thinking—thinking by businessmen, professional social scientists, and agencies, public and private, interested in the problem—on what the post-war difficulties will be and proposals for dealing with them. For these, too, are factual data that will, through their effect on legislation and business and consumer anticipations, profoundly influence the actual post-war situation. Hence it is necessary to examine such thinking in a careful and analytical fashion in order to abstract the underlying principles basic to the various proposals, and thus to provide policy makers with sound information as to the limits of the problems with which they will be working. Accordingly I propose to take you through the following three steps: first, to trace the effect of the war on certain basic components of the economy; secondly, to present, for illustrative purposes, one of the possible sets of assumptions and estimates as to shifts in these factors upon the cessation of hostilities; and finally, to point up what these data and estimates indicate as

to the probable pattern of the problems with which the post-war policy makers will be faced.

Background Data on War Trends

Perhaps the most dramatic indication of what has been happening to the economy is revealed in the rise of the national income and its distribution during the war years. National income has just about doubled in the last four years. Half of our present income and production is going into the war effort.

When the peak of war employment is reached around the middle of the coming year, we shall have put at least 17 million more people into the armed forces and into industry than we had at work in 1940. This has been made possible by the absorption of some 8 million unemployed—frictional unemployment due to inevitable labor turn-over, illness, etc. is now well below the million mark—and the entry into the labor force of some 8 to 9 million *new* workers—women, children, students, and older people. The most significant factor in this expansion, of course, has been the rise in the armed forces from less than half a million towards an anticipated peak of 11.3 millions in July 1944. Aside from this, the rise in employment has been largely in manufacturing and particularly in the heavy goods component. At the peak, manufacturing employment will be in the neighborhood of three-fourths greater than what it was in 1939.

The rise in factory payrolls has been even more spectacular, with factory payrolls more than triple their 1939 magnitude. This latter development has been due to the increased numbers working, higher hourly rates, overtime and other premium payments, and the shift from low-paying to high-paying industries and occupations. One consequence of this is the marked shift during the war of income recipients into the higher income brackets. Four times as many people had incomes in excess of \$5000 a year in 1942 as in 1935-36. More people have more money today than ever before. Which not only explains the necessity for price ceilings and rationing during the war, but points to a probable unprecedented accumulation of savings, and the implications this may have for the immediate post-war period, both as a promise and a threat.

* This issue of the Journal includes edited drafts of all the speeches made at the Society for the Advancement of Management Annual Conference, December 3 and 4, 1943. The papers themselves have been shortened and the accompanying discussions have been omitted in order to conform with war-time regulations in the use of paper.

Another war phenomenon has been the increase in the proportion of women in the labor force. Women are now doing about everything that men did four years ago. They constitute a surprising proportion of the workers in vast industries like ordnance, aircraft, and shipbuilding, and they are now to be found even on railroads. Between July 1940 and July 1943, 4 million women entered the labor force. The estimated war peak total is 18.2 million, 4.4 million above 1940, and 3.0 million above the estimated normal derived by projecting pre-war trends. Of course the situation is not likely to return to a "normal" calculated in this way. We can be sure that many women will voluntarily leave the labor force when the war is over, but we do not know how many. Chances are that a significant proportion of the new entrants will stay in if given a chance.

The *differential geographical impact* of war has brought about a mass migration. Wartime industrial developments have accompanied a population increase of 4.5 million for 1940 to 1943. In that time seven and a half million were drawn into the armed forces, leaving a civilian population smaller by three million or 2.4 per cent for the country as a whole. But because of the differential impact of war production the interior of the country actually lost in total population, while the states on the seaboard, and the large industrial states, gained.

Estimates as to End-of-War Shifts

Great interest centers around the character and the magnitude of the shifts that are to be expected when war comes to end and we move toward the establishment of an economy of peace. Our thinking about these problems will be advanced if we make certain tentative assumptions and ascertain how they would affect our problems.

Let us make the following assumptions and see what results would appear.

1. Victory over Germany in mid-1944.
2. Victory over Japan in mid-1945.
3. A decrease of three million in the land forces during the Asiatic phase of the war.
4. A reduction of 50 per cent in the rate of munitions production by the end of the Asiatic phase of the war.

The item of greatest interest to us in applying these assumptions is that for unemployment after the war. *Agricultural* employment can be expected to remain quite stable at current levels. The pattern assumed here for 1944 and 1945 is based on the 1942-43 seasonal pattern. The extreme seasonal fluctuations of agricul-

ture account for a large portion of the seasonal variation in the total labor force.

For *mining, transportation and public utilities* the current employment level, which is slightly higher than in 1941, is assumed constant throughout the remaining war and post-war period.

The category labelled *non-industrial* is heterogeneous, for it includes trade, finance, services, and the self-employed. The important fact about these activities is not so much their stability, but rather their dependency upon other factors. They can be expected to respond more or less to changes in general population. Their level is a function both of the number of workers available and of the general industrial activity which they service. The two million increase in employment during 1941 was probably due to the latter, and their subsequent decline of over 3½ million during 1942 and 1943, to the former factor, as well as the fact that war restrictions affected many trade and service functions. It is assumed that employment in this group of activities will rise by about one million in the first six months after V-G and another million after V-J. Both of these expansions will be facilitated by the release of workers from the armed forces and by the expansion in normal productive industrial activities.

Construction is listed as relatively "inflexible" only because it is felt that the backlog of demand for housing and maintenance and expansion of peacetime industrial facilities will be so urgent that the only limitation to expansion in this field will be the physical ability of the industry to resume activity. Construction employment increased from 1.3 million in early 1940 to a peak of 2.2 million in the autumn of 1942 as war industry facilities were expanded at a phenomenal rate. It has subsequently declined to less than a million because of materials and labor restrictions, and is expected to decline still further up to V-G. After that it is assumed that with the release of facilities and materials from munitions production, employment in the industry will begin a steady climb to perhaps 1.8 million six months after V-J.

Government employment in other than war agencies holds a fairly stable level. It has declined slightly since 1942, but the assumption is that the June 1944 level will continue throughout the Asiatic phase of the war, and that after V-J this component will rise to 1941 peaks owing to the expansion of public works, and as former government workers are released from the armed forces and restored to their old jobs.

The 1.5 million workers in *Federal war agencies* in January 1944 will probably keep their jobs throughout both phases of the war. And the cutback after V-J is not likely, at least in the first few months, to be at all proportionate to that in the armed forces since temporary continuation of economic controls may necessitate a prolonged life for such agencies as WPB, OPA, etc.

This leaves us with four factors as active determinants of the magnitude of post-war unemployment: (1) the timing of demobilization of the armed forces, (2) the timing of termination of employment in war production, (3) expansion of employment in peacetime activities, and (4) the ultimate size of the labor force as determined particularly by the number of withdrawals.

The *armed forces* have grown from half a million in 1940 to about 10½ million at the end of 1943. The figure for June 1944 was derived on the assumption of a straight line increase to the official peak of 11.3 million by July 1944. It was also assumed that the release of 3 million servicemen after V-G would be spread evenly throughout the ensuing year, with a more precipitate drop after V-J to four million within six months. A level of armed forces commonly assumed for long-run post-war defense needs is two and a half million.

Perhaps the crux of the post-war unemployment problem is to be found within the group of heavy industries—aircraft, shipbuilding, metal working industries, chemicals and rubber—which is the source of war munitions, and which will bear the burden of reconversion to meet the immediate post-war demand for consumer durables. These figures particularly must be considered purely illustrative. Employment in this group has already expanded from a little over 4 million in early 1940 to about 10 million, and the peak requirements estimate is for 9.8 million by July 1944. We have assumed that this group will show a gradual decrease for nine months after V-G to a level of 6.6 million—*gradual* because of the concomitant expansion of civilian heavy production to two-thirds of 1940 levels that would be made possible by the cut in munitions requirements. It should be noted that the drop after V-J is not so precipitate as might at first blush be expected, because (a) civilian reconversion and expansion will already have had a good start, (b) there will still be some demand for munitions for post-war defense, (c) there should be a large demand for consumer durables, and (d) the raw material capacity of the nation will exceed its pre-

war level. The estimate of 5½ million employment in this field six months after the war, which would be comparable to early 1941 activity, is most tentative. Actually much will depend upon the attitudes and expectations of businessmen, consumers and the government.

Manufacturing other than in this war production group rose from over 6½ million in early 1940 to a high of 7.8 million in late 1941, then declined steadily to slightly above 7 million at the present time. We have assumed a continuation of this level to V-G, and then a slow steady rise as former employees return to their jobs, high consumer income renders demand effective, and labor and materials are released from munitions production. Employment might reach 7½ million six months after V-J, a level comparable to early 1942 activity.

The size of the *total labor force*, which is an important factor in determining the size of the unemployment residual, is itself indeterminate. Although it expanded fairly steadily up to the present time, and is expected to go still higher to a peak of 65.7 million in the middle of next year, its trend after that is subject to wide variation. It will depend on the rate of population increase, the number of further entrants into the labor market, the number of war casualties, and the volume of withdrawals after V-G, and later after V-J, as normal breadwinners return and the appeal of patriotism slackens.

Geographical Impact. The impact of demobilization will not be even. It will hit some geographic areas harder than others. The industrial state of Michigan will probably find that it has nearly six demobilized servicemen and released war workers seeking jobs for every ten persons employed in the state before the war. By contrast the proportion may well be only two to ten for states like the Dakotas, the Carolinas, Mississippi, Wyoming, and others in which there has been little specialized war production. Even this ratio is serious, of course, and within a state certain communities will be particularly affected—as San Diego, California, Wichita, Kansas and Portland, Oregon where the number of factory wage earners is now many times as large as in 1937.

This brings me to what is really the strategic phase of the whole post-war issue—the upshot of these many data and hypotheses on actual and expected trends—and that is the specific policy issues that, because of their influence on the dimensions of post-war employment, will require clear cut decisions on the part of the government. However, both the limitation of time

and the fact that my two colleagues on this program are going to provide you with the answers, discourage me from doing more with this aspect than merely sketch in outline form what the problems are likely to be.

The timing of demobilization, both of servicemen and war workers, will obviously have a profound effect upon the volume of unemployment in the first post-war months. Planning for the release of servicemen will involve, on the one hand, a recognition of the resentment that must inevitably be fostered by any delays, and on the other by the difficulties that might result from mustering out men before there are jobs available for them.

Contract termination and the consequent release of war workers is likely to be governed by the primary consideration that materials and productive and transportation facilities must be made available for reconversion and expansion of peace production as rapidly as possible. Nevertheless, there will be some scope for a limited policy of tapered cancellation in connection with certain goods needed for post-war defense and foreign relief and rehabilitation, and other items which have a domestic peacetime use.

The significance that social policy might have for the size of the total labor force, and consequently the unemployment residual, is also indicated by the possibility that conceivably as many as five million withdrawals from the labor market might occur if we have a program of government subsidies for expanded educational opportunities, increased old age coverage and higher benefits, and more liberal family allowances or income tax deductions for dependents making it possible for some women to return to the household who otherwise would not do so.

The important influence which an efficient and well-coordinated labor exchange could have upon average post-war unemployment is clear, considering the fact that the gross or total number of jobs shifts, including both *inter-* and *intra-*industry transfers, will present a placement problem of unprecedented magnitude.

The rate at which reconversion and expansion of civilian production will proceed will depend in part upon such tangible and direct factors as the minimum time required for re-tooling of plants, re-assembling of materials and skilled labor, re-scheduling of production, and re-building of distributive organizations. That rate, however, will not be determined solely or even primarily by such physical limitations. Much more important will be considerations growing out of,

and in turn affecting, the general economic climate or environment, such as the policies adopted by government and the expectations and actions of industry. Thus it is impossible to say that full peacetime employment will have been reached as of any specific date. It cannot even be said with certainty that 1940 levels of production will be exceeded in a post-war year such as 1946 or 1947, although if these levels are not exceeded the larger labor force and increased productivity of the post-war period will raise unemployment above the 1940 average of 8.1 million.

The accumulation of deferred demand and liquid savings during the war creates a presumption in favor of rapid expansion of our civilian economy, or at least of large segments of our economy such as construction and the industries manufacturing consumer durables. But in the final analysis the rapidity of reconversion and the over-all level of employment achieved as of any given date after armistice will also depend on a number of other factors. These include the policies developed to settle the disposal of government-owned war plants and surplus stocks of war goods, the speed of settlement of war contract obligations, tax policies directly affecting business, and the adequacy of capital and credit facilities, including those available to small business units.

As a concluding note I want to emphasize that despite everything constructive that may be done in the areas we have just reviewed, the volume of unemployment in the transitional post-war months is certain to be serious. Hence it is important that we be prepared to render all possible assistance to the victims of this unavoidable situation.

Careful consideration should be directed to the question as to whether financial support to the unemployed should take the form of separation pay and dismissal wages, or expanded unemployment compensation benefits, or a combination of the two. The feasibility of providing the jobless with constructive retraining opportunities should be explored. Finally, but of primary importance, steps should be taken now towards having ready soon enough an adequate program of public works to make it possible to avoid reliance upon "handouts" by giving honest employment at fair rates of pay to those who will otherwise be without jobs in the transitional period.

If the situation is managed wisely, unemployment need be but of short duration and we can hope for a steady increase in national income and a continuing improvement in our national well-being.

Labor's Plan for Solving Post-War Problems

By R. J. THOMAS

President, International Union, United Automobile Workers of America, CIO

THE problems which will face the workers of America at the conclusion of the war will nowhere be more acute than in the automobile and aircraft industries, for whose workers I speak. The fortunes of these industries and their problems will be typical of the problems which will confront the entire country.

Present employment in the war plants of the automobile industry amounts to approximately 850,000. Employment in plants of the aircraft industry stands at a record-breaking level of 1,800,000, in comparison with approximately 50,000 in 1939.

Assuming a relatively high degree of post-war economic prosperity, with the maintenance of production levels above 1935-39 averages, the auto industry could provide employment for approximately 450,000 workers. The adoption of the 30-hour week could conceivably increase this total to above 550,000.

In aircraft the most hopeful estimates of employment suggest that there will be no more than 300,000 post-war aircraft workers. This is based on the assumption of a continuing army of two and a half million and very substantial expansion in the employment of planes for freight and passenger transportation. It does not, however, assume the development of the aircraft industry in mass production terms. The development of a cheap, safe, easily operated plane would open the way for sales of close to one million planes per year, and provide employment for approximately 250,000 additional aircraft workers.

The most optimistic estimate of employment for the automotive and aircraft industries, therefore, would call for the elimination of about 300,000 workers from present automobile plants and at least 1,200,000 workers from aircraft plants.

Therefore, we may expect some 1,500,000 workers to be displaced from aircraft and automobiles. Before we reach that stage, however, we will be in for an even more serious problem—the problem that will arise from the period of re-conversion from war to peacetime industry.

The problem of converting large scale automobile industry from its present production of tanks, planes, guns and shells to civilian passenger cars and trucks, is one of major proportions. Various estimates have

been made by various automobile corporation officials of the time required for this process, ranging from three to eight months. Unquestionably, the termination of war contracts to the auto industry will result in substantial conversion layoffs. Probably not many more than 250,000 or 300,000 workers will find employment in the industry during the three-month period of maximum layoff.

That is the picture of the automotive and aircraft industries alone. When we add to that the problems of the shipbuilding, the steel, the electrical equipment and other industries expanded because of the needs of war production, we can readily see that the fear of an army of 15 million or 18 million unemployed after the war has some basis in fact. Looking beyond these facts, and observing the absence of concrete planning to provide jobs, one can see instantly the old picture of breadlines, of able-bodied men selling apples in the streets, of huge sums expended for relief by public and private agencies.

There is an alternative to this serious situation. That alternative is to insist that our great productive machinery shall be used—as it has never been used before—for the sole purpose of providing abundance for our people. This alternative must be based on the principle that industry should serve the people, and not merely the chosen few who own industry and operate industry for private profit.

There is no doubt we will have the resources to assure every American a job. We will have such productive capacity as neither we nor any other nation has ever known. The war is forcing a tremendous expansion in manufacturing capacity.

The National Bureau of Economic Research, in a recent report, declares that with a labor force only *one-fifth* greater than at the beginning of World War I, our factories nevertheless in 1939 produced an aggregate *twice* as large as that of 1914.

During 1939 we had almost ten million manufacturing workers; we had only five million in 1899. Yet while factory jobs *doubled*, the output of our manufacturing industries increased *four-fold*. In other words, after forty years of improved machinery and increased labor efficiency, it takes only half as many workers to produce a given volume of goods.

We can see from these statistics that America clearly has the means to build a nation where poverty will be unknown. The question before us is: can we do as well for social reconstruction as we are doing to produce for war? Labor insists it *can* be done. We insist that the present war for democracy must result not only in the routing of the Axis powers, but in positive triumphs of democracy in a way that will mean something tangible to the folks at home.

Reconversion Period

I do not want merely to generalize on the possibilities for post-war America. To accomplish the building of an America fit for heroes, we need specific steps. I want to suggest what some of those steps should be. First there is the problem of the reconversion period. In this connection, labor proposes:

1. The establishment of national industry-wide councils with equal labor participation to work out reconversion schedules.
2. Millions of workers must not again be thrown out of employment in the midst of empty factories, unworked mines and untilled fields. In so far as private industry is unable to utilize the productive resources of the nation, the government must undertake this responsibility.
3. Maintenance of labor standards during the reconversion period against any attempt by industry to lengthen hours, reduce wages or lower the standard of living of the American worker.
4. Legal protection to all workers who transfer from non-essential to essential war jobs so that they will be guaranteed the right to return to their former jobs with accumulated seniority.
5. Industry should now establish reserve funds to be paid out to its present employes or those who have been inducted into the armed forces, during any post-war unemployment period.
6. Protection against exploitation of low wage areas to the detriment of areas which provide higher wages through industry-wide equalization of wages.
7. Extension of rationing and price control until the normal relationship between production and purchasing power shall have been established.

More Permanent Solutions

Within the scope of these steps, proposed primarily to meet the problems of the re-conversion period, there will be the beginning of more permanent solutions for the serious period of so-called "normal"

production. The UAW-CIO, I believe, has made the most constructive proposals in this regard. Our program for the post-war period is not a timid document. We have not hesitated to propose bold solutions for the most acute problems our people have ever faced.

There is inherent in the UAW-CIO program the feeling that industry, which is the business of providing our people with the necessities of life, should, to a larger extent than ever before, be subject to the influence of the people, the workers and consumers of all classes. We frankly take the position that private ownership, unchecked private domination of industry, has never provided the assurance of prosperity for most of the people over a reasonable period of time. When a man is arrested for reckless driving three and four times, he has his license taken away. Labor declares that management and ownership which has repeatedly involved our nation in economic crises and depressions can no longer insist on the right to an unconditional license. The UAW-CIO therefore proposes that the people who suffer from our periodic crisis should be given some voice in trying to remedy the situation.

We have one fundamental prerequisite to the formulation and execution of any democratic post-war plan. Organized labor must be given full representation and responsibility on all levels. Organized labor of all nations must sit in responsible positions at the peace table and in treaty negotiations following the victory of the United Nations. Organized labor must also be represented at conferences held during the war dealing with post-war problems, such as conferences dealing with food, trade, conditions of labor, etc.

What policies would labor propose if it were given a voice on economic problems? Here again we come to a fundamental aspect of labor's post-war thinking. We reiterate our feeling that industry must be made the servant of the people. Therefore, we propose:

Our industries can no longer be operated to serve private interests where those interests conflict with the public need. Initiative can find its most useful outlet, greatest recognition and highest reward when exerted in the public service. Industry should be encouraged to plan for full production. Such plans, however, will be effective to the extent that management engages in industry-wide collective bargaining with labor unions to stabilize wages, hours and working conditions.

We propose the rehabilitation and protection of small business.

We propose reduction of the working week to thirty hours without reduction of pay, as part of a full production program.

We propose government or municipal ownership and operation of monopolistic industries and of industries strategically essential to the national safety, and government control and regulation of other industries to prevent the abuses of monopoly and to assure production in the public interest.

Suggested National Program

The tasks involved in the post-war reconstruction period will be staggering in their size and scope. Problems involved in the transfer from war production to peacetime pursuits will involve large-scale national resources and the finding of a solution to our housing problems that have become critical. That these programs may be integrated with the objective of maintaining full employment in the post-war period and so contribute to the well-being of our citizens, the UAW-CIO proposes a large-scale national program for:

(a) The construction of adequate schools for rural and urban areas.

(b) Roads, highways and grade separations.

(c) Adequate hospitals and health clinics.

(d) Child-care centers in cities.

(e) The development of parks and recreational facilities.

We propose also these national programs:

(a) The conservation of all natural resources such as soil, timber, oil, minerals, etc.

(b) The further development and construction of power projects, similar in nature to the T. V. A.

Housing

In order that decent housing may be made available to all income levels of our nation, we propose the following program:

1. *Regional Planning*: This is essential to insure the orderly development of residential and business areas, preventing the misuse of land which destroys values, and making sure that construction and use activities shall be sensibly controlled in the public interest.

2. *Blight Prevention*: For the protection of present healthy city neighborhoods against undue deterioration, blight and decay. This can be done through wisely drawn and effectively administered zoning laws, backed up by a complete and positive program.

3. *Public Acquisition of Land*: To establish sound policies and programs for the purchase and assembly

of land by public agencies to promote healthy living conditions.

4. *Home Building*: To provide long range programs on a large scale for the building of adequate, comfortable homes by private builders with government aid and regulation, at a cost that low-income workers can afford to pay.

5. *Disposition of War Housing*: To provide policies for disposing of publicly-built temporary and permanent war housing in a socially useful way, after such housing has served its original purpose of sheltering war workers.

6. *Slum Clearance*: To provide economically and socially sound policies for the clearance and useful redevelopment of slum and blighted urban areas.

7. *Subsidized Housing*: To provide for the subsidizing from public funds of decent housing for those citizens who cannot pay the cost of such accommodations.

The Returned Soldier

The problems of our returning soldiers and sailors, must, in common sense and justice, also receive our attention. It is our responsibility to make certain that their sacrifices will be honored by something more practical than a silver medal. Every returned soldier and sailor must be given opportunity for useful employment, and the security of his dependents must be guaranteed.

Labor will keep faith with their brothers-in-arms. We submit the following as concrete measures. A guarantee to every member of the armed forces of a job through a peacetime economy of full employment and full consumption; and enforcement of seniority provisions in the law and in union contracts.

Labor proposes also:

A government-financed program for settling returned members of the armed forces on farm land through individual and community projects.

A separation allowance or bonus up to \$2500 for each honorably discharged member of the armed forces, the amount to depend upon the length of service, number of dependents and other pertinent factors. An initial substantial payment to be made upon discharge from service, the balance to be paid in installments over a reasonable period of time.

A free education, including training for a trade or profession, shall be made available to every returned member of the armed forces.

(Please turn to page 14)

Industry's Plan for Reconversion

By GEORGE W. ROMNEY

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RECENTLY C. E. Wilson, President of General Motors, told the Truman Committee:

I have said several times, and I would like to say it again, that the real news of the war is not that we have learned a lot of things in the war that we can use in our peacetime products; the real news is that our American methods of production, our know-how about the business, could be applied to the mass production of all these war things, many of which a good many of our people . . . had never even seen before. Anybody who really understood the essentials of progressive manufacture, accurate inter-changeability of parts, and mass production, could take the blueprints of anything, and if the blueprints were right, he could make it and make it in quantity effectively and efficiently. That is the real news, and that is the one that I think our Axis enemies overlooked. They didn't think we could get together in this country and do that job.

The reliance on words, rather than deeds, undermined our confidence and became a dangerous ally of our foreign enemies. Further, it became a ready travelling companion of an artificial philosophy which developed in this country as a result of the last war.

I refer to the idea that democracy is all right in peacetime, but in wartime we must scrap it for a regimented economy controlled by wartime czars. Americans became convinced that only through a home-grown species of economic dictatorship could America's resources be fully mobilized; that individual enterprise was inefficient, compared to the Nazi and Fascist economies.

It's time we recognized the hidden implications in this still prevalent notion that a free people must sacrifice their freedom in order to wage a successful war for freedom. It's Hitler's thesis. In a pronouncement to his followers, he said, "The Nazi world of ideas will become the common property of all peoples, even our enemies, through this struggle. One state after another will be increasingly compelled to resort to the National Socialist thesis in the conduct of war."

Is this doctrine true?

If it is, Hitler has won the war of ideas, and even Napoleon acknowledged that ideas are mightier than the sword.

Last week, Dr. Robert S. Lynd of Columbia University, as reported by the *New York Times*, advocated to 2500 teachers "that the United States operate

under a centralized national planned economy after the war. He advocated the measure as the only method by which the nation could continue its advances in technology and compete with other nations organized on a similar basis."

This man has already lost the war! He has accepted Hitler's thesis.

He has ignored the fact that the democratic procedures which fostered the development of American industry have proven themselves superior both in war and in peace. I know this has been true in the automotive industry.

At a meeting of the entire industry immediately after Pearl Harbor, Paul Hoffman, President of Studebaker, clearly expressed the viewpoint that has dominated our industry in its wartime accomplishments. He said:

There are those who suggest that if we are to win, we must give up our freedom and submit to dictatorship. If I believed that to be true, I'd say, Amen. But it so happens that it's a doctrine I utterly reject. I believe with all my heart and soul that free management and free labor, each doing its part of the job, but cooperating with each other and the Government, can out-produce any economy in which labor is enslaved and management shackled. I say that, instead of trying to get Hitler's results by imitating Hitler's methods, we must surpass his results by avoiding his methods.

More than ever we need leaders who recognize this and place sufficient value on individual initiative to be willing to delegate authority into hands that have proved their capabilities in the stiff contests of peacetime competition.

Let me be even more specific. Taking advantage of the public's temporary loss of confidence in the automotive industry, the unions persuaded the Government to establish a tri-partite committee to direct conversion of the entire industry to war production. This committee was made up of three representatives of the industry, three representatives of labor, and three representatives of Government. This committee—this debating society—was to be substituted for the more than one thousand managements of the more than one thousand plants in the automotive industry.

Can you imagine the paralysis that would have crippled the industry if these more than one thousand

managements had actually been compelled to wait until this committee of nine had agreed on blueprints for the industry's conversion? You should be thankful that one of the first things Donald Nelson did, after becoming head of the War Production Board, was to liquidate this committee.

Another field where the automotive industry and all industry faced regimentation was in the control and distribution of raw materials. Only a few months ago this was our biggest national war production problem. We floundered through a jungle of plans, and each time a plan failed, the planners took more responsibility away from the materials control specialists—the purchasing agents—in industry. The result was completely regimented chaos under the notorious PRP plan. Of course, this all-out regimented control of materials failed!

A new plan, called the Controlled Materials Plan, was adopted. Significantly, it started the retreat from the idea that Washington could regiment materials. It still does not go far enough in eliminating red tape and paper work, but it *does* define Government responsibility and makes some use of the materials control experts of industry.

The big problem today is manpower. As a nation, we are handicapped by the fact that the solutions of today's manpower problems call for a reversal of yet another attitude that had a strong growth in the past decade. We are still trying to operate under rules designed to "spread the work"—as the popular phrase of those recent times put it. The war has confronted us with ugly realities, and is showing us that those once troublesome surpluses and that so-called "over-production" were only enormous myths.

We know now that we did not solve our depression problems by spreading the work.

We merely deferred the solution!

We are also finding out that our present manpower problem will not be solved by giving some bureaucratic czar the power to push workmen around like chessboard pawns. To this idea a great manager of automotive mass production retorted:

I'd hate to try to produce efficiently in my plant with workers who did not want to work for me.

Detroit, along with the rest of the country, has been moving at an accelerating speed in the direction of national service legislation.

But something significant has happened! Almost from the beginning of the war, those in charge of

national manpower policies have exaggerated Detroit's manpower problems for the purpose of applying more and more drastic controls—controls which management and labor knew would not meet Detroit's problems and would deprive management and workers of the freedom necessary to maximum war production.

Management and labor went to Washington. We went to Washington jointly. Blair Moody of the *Detroit News* reported:

Detroit is the first large city given authority to run its own job.

... Labor and management almost invariably appear in Washington on opposite sides of the table. In this they are working together ...

And the fact that Detroit is down here with a single unified program is in itself enough to make Government administrators blink.

We were given thirty days to work out an employment stabilization plan for Detroit. We met that deadline, but the War Manpower Commission was not satisfied. It threatened to withhold approval of the plan because we had failed to provide for the controlled referral of all males in the area and for referral only through the United States Employment Service.

Again, significantly, Detroit management and labor representatives stood united and their unanimity was too much for Government bureaucracy! The Government gave in and approved the plan.

Detroit management and labor have gone farther. Recognizing that an employment stabilization plan only deals with specific phases of the manpower problem, they have united in launching a community manpower organization known as the Detroit Victory Council. All major segments of the community are participating. For the first time, Detroit is making a united approach to the solution of community problems that affect manpower, such as child care, housing, transportation, recreation, civilian services and civilian supplies.

You may be amazed to know that it is still doubtful whether Detroit has a manpower shortage. The Government made Detroit a No. 1 Critical Area more than a year ago and recently set up a Production Urgency Committee to move work out of Detroit because they say it doesn't have the manpower to handle its load. Management and labor challenge this.

In concert with the community as a whole, we are going to determine Detroit's manpower resources and its requirements as a means of ascertaining for the first time whether Detroit is short of workers or work.

Recognizing months ago that manpower problems would be the ultimate hurdle to maximum war production, our Council made a survey of workers in automotive plants. We found four major attitudes: (1) Nearly all workers wanted to do more work; (2) Nearly all workers wanted better discipline in the plants; (3) Most workers believed that huge profits were being made in war industries; (4) Most workers were found to know very little about the purpose of the war, material shortages, the fluidity of war and its effect on war production.

The desire of most workers and management for efficient production is seriously affected by four things: labor loafing, union interference, green and overloaded supervision and the employment of the so-called unemployables. Minority groups in each plant are holding down production because of the automotive industry's type of mass production, where timing is such that one or two loafers can hold back the whole line. This would not be so bad if the loafers could be disciplined, but over the past ten years, there has been a steady deterioration in shop discipline.

One discouraging factor is the current tendency for unions to demand a constantly increasing share of responsibility for disciplining workers when unions, by their very structure, are political organizations and cannot discipline their own members without antagonizing votes. Another is the political philosophy that "Labor can do no wrong" and the present inability of management to make disciplinary measures stand up when they reach government agencies.

It has been amazing to find out how many war workers and how many generally well-informed people believe that management profits from overstaffing its plants and increasing costs. The public generally seems to believe that war contractors operate on cost-plus-percentage contracts.

The facts are that such cost-plus contracts are illegal. None has been placed by the Procurement Services, and there is no way by which a war contractor can increase his profits through inefficiencies.

Under all contracts, fixed fee or fixed price contracts, profits are increased by efficiency.

It is to be hoped that our great need for armaments will eventually liquidate the "share-the-work" philosophy which results in job loafing and "job hogging." Most Americans now recognize that monopolistic restrictions on output resulting from industrial monopolies or restraints of trade are detrimental to the public welfare. In mass production plants, artificial restrictions on production through deliberate job

loafing and "job hogging," such as have been promoted in this country are equally detrimental to the public welfare.

Contract Termination

Contract termination is a problem of today whose real significance is not generally appreciated. It sounds like something that is going to happen at the end of the war and that involves dollars and cents. Actually, it is a bigger problem now that it was at the end of the last World War. The War Department alone has already cancelled 8 billion dollars' worth of contracts, as compared with 3½ billion at the end of the last war.

Because of the upheaval that occurred in automotive plants when they were converted—the ripping out of conveyor lines, the removal of equipment, the installation of new equipment, and the filling of the plants with the materials and parts required to produce guns, tanks and planes, instead of automobiles—contract termination is a tremendous physical problem for the automotive industry.

When contracts are cancelled, the Government machines, work in process, and materials, must be moved out of the plants as promptly as the industry moved its own equipment out in order to convert to war production. Our industry is spending a great deal of time and effort now on making this problem clear to the Government. For our industry, it is more than getting our working capital back promptly and quickly. It is a question of clearing our plants immediately so that they can be reconverted to automobile production.

We will not be satisfied until the Government's preparation for this task is sufficiently perfected so that, on the very day of termination, automotive war contractors can begin to move the Government machines, jigs and fixtures, parts in process, and the raw materials out of the plants with their quantity and value determined at that time by Government officials whose decisions will be final.

Even under these favorable circumstances, it will take most companies from three to six months to get back into automobile production. Meanwhile millions of workers in this country, dependent upon automotive production, will want work. Contract termination is really the problem of jobs after victory.

Automotive machine tools are scattered all over the world. Six thousand that could not be used by automotive companies on war production were shipped to people outside the automotive industry, many of them as far as Russia. These machines must be replaced, and this will take time.

Recommendations

Although companies are planning to resume production on the 1942 models, for which the jigs and fixtures, and tools and dies have been preserved, some experimental work needs to be done. As our industry has already pointed out to the War Production Board:

Anything that can be done to accelerate the reconversion of automobile plants for the manufacture of automobiles for civilian use in advance of the time that this actual reconversion can be permitted, will be of material advantage in reducing the period of unemployment which will occur when this reconversion period is reached. Millions of people will be dependent upon the earliest resumption of production by the automobile and allied industries. It is therefore important that any activities involving the use of material needed in the preparation for resumption of production and employment should be encouraged as soon as possible.

Because of these conditions and their importance to the Nation, the Board of Directors of the Automobile Manufacturers Association makes the following recommendations:

1. That the War Production Board clarify now the procedures with respect to the obtaining of materials for civilian automobile experimental purposes.
2. Each former manufacturer of passenger cars should be given an opportunity to submit his ideas during the development of any proposed plan for the resumption of passenger car production.

The reconversion of the automotive industry cannot take place overnight. As already indicated, by some preparation now, months of delay and unemployment can be avoided after the war. This time factor is important, although I am inclined to believe it is being treated too lightly.

Putting more men to work or putting Government into business or doing anything other than taking the time it requires to do the job will not make up for the failure to authorize the automotive industry to take the minimum steps *now* that must be taken before automobiles can come off the lines that are now producing guns, tanks and planes.

Let's put first things first by recognizing that the problems of today are our major post-war problems. The errors we are making, some of which I have mentioned, are already threatening to throw our whole national structure into an uncontrollable spiral of destructive inflation. I submit that reconversion and peacetime plans won't mean much unless we find much better solutions for these currently pressing problems of today.

Somehow I believe we shall find them. I believe it because I have seen growing in this country, slowly

but steadily, a dynamic respect for the inalienable rights and responsibilities with which we are endowed by our Creator, coupled with the revival of the kind of cooperative spirit which imbued the founders and builders of this Nation.

I cannot help but believe that this re-awakening spirit of American teamwork will not only pull us through to clear-cut victory, but will have enough momentum left at the end of the war to help us build a future a little nearer to the hopes of free men.

The history of Western civilization is nothing more nor less than the story of man's long struggle to keep Government interference from becoming tyrannical control. It is a struggle that can have no end this side of human perfection.

The Revolution with which the American Colonists freed themselves from the Mother Country was an achievement in the people's long struggle with Government interference. Yet, immediately after that victory had been won, the need for continuing the struggle again became urgent. The Whiskey Rebellion which flared up when George Washington was President was the result of the American people's reaction to legislation enacted for the special privilege of powerful New England businessmen.

And, in the latter half of the last century, when our industrial expansion reached its full stride, virtually every major industry in the nation participated in the great national game of getting special privileges from Government.

Finally, at the end of the century, the power of these special interests became so galling that a great wave of public unrest arose spontaneously in the Nineties and, for a time, threatened to become a revolution. Theodore Roosevelt became President. The American people found a champion for the reforms they demanded and the anti-trust legislation with which Roosevelt the First rocked the special interests back on their heels was nothing more nor less than that interference of Government in business which these same special interests had been seeking all along. They asked for it, and they got it!

In more recent times, we have seen other elements of the American people running to Washington with their petitions for special privilege and Government interference. First, the farm lobby, and still more recently, the labor group. We have already seen the beginning of the end of the farm groups' dependence on Government. The farmers, like Big Business of about 40 years ago, are now discovering that Government does not grant special privileges to any group

without the imposition of controls upon the liberty of that group.

Based on my experience, labor is beginning to make the same discovery; for when labor asked for and received from Government special privileges, it guaranteed the loss to Government of as large a portion of its freedom as all other special interests did when they sought special "rights" in the past.

The automotive industry has not followed the traditional pattern of seeking preferential and special consideration. It recognized that what was good for the Nation was good for the industry, and this was only lasting enlightened selfishness. As a result, in establishing the Automotive Council for War Production to assist the entire industry in expediting its output of armaments for the armed forces, it provided in the By-Laws that its purpose should be:

To expedite the mass production of materials and articles needed by the United States or its allies for the prosecution of the war and to cooperate with agencies of the United States Government for that purpose.

The industry decided its own organization should exist for the purpose of helping the industry serve the national interest. As the operating head, I have no obligation to seek the protection of the industry's interest, except as that is identical with the national interest.

Contrast this with the stated objectives and purposes of the Automobile Manufacturers Association of which I am General Manager. Its stated purpose is characteristic of that of nearly every business and other minority organization in this country:

To foster the interest of those engaged in the trade or business of manufacturing automobiles and all other self-propelling vehicles.

The industry did not use the organization to promote the special interest of automobile manufacturers, but it was wrong to have that as the stated purpose just as, in my judgment, it is wrong for industry, labor, farm, women or any other minority group in this country thus to pervert the right of petition provided in the Constitution. No minority group as such should be represented at all levels. To do so would destroy Democracy.

The one thing the world will need desperately after this period of world-wide destruction ends is production—mass production of more things in greater quantities than the world has ever needed before. No government can fulfill that need. It can be fulfilled only by the labor of the hands and minds of people.

To meet the challenge that will confront us when this war is over, the one thing we Americans will most need to demand from our Government is liberty. That is essential to production. We will not regain that full measure of freedom except by demanding it as a whole people. To seek it, group by group, is, as all history warns us, to pave the way for the dictator whose formula is the ancient one: "Divide and rule."

The automotive industry united for war production stands united also behind certain ideas bearing on reconversion and war production a few of which are:

1. Concentrate on the solution of today's wartime problems, especially in the field of human relations.

2. Unshackle the *doers*—management and workers.

Do not lengthen the creeping paralysis of industry by continuing for one day longer than absolutely necessary Government or any other type of centralized management. Public policies? Yes! Clear and reliable.

3. Government release of the infinitesimal amounts of materials and the few technicians required for experimental work necessary even before production can resume on 1942 models.

4. Government should determine now the Government-owned machines and facilities that will be sold and the basis of sale.

5. Completion now of the Government policies and paper-work necessary for the industry to clear its plants of war materials and equipment as quickly as it cleared them of automotive materials and equipment when car production stopped.

6. Resume and intensify the development and research on which more jobs and safer, better and more efficient cars and trucks will depend.

7. Oppose production-stifling limitations on competition as the ultimate factor in determining the success or failure of separate enterprises.

8. Oppose scarcity breeding monopolies whether of management, labor or Government.

9. Intensify efforts to reduce traffic fatalities.

10. Use of motor transport revenues to modernize those streets, roads and highways in greatest use.

11. Rely on the ingenuity and enterprise of automobile dealers to continue to improve the efficiency of new car distribution, rendering them such assistance as will enlarge their opportunity to improve their services to car buyers and owners.

12. Strive harder than ever to put national interest above special interest—what is good for the country is good for every minority group.

Manpower Utilization—Now and Post-War

By BERNARD SLESS

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THE problem of manpower utilization is a continuing one and will, of course, be a definite problem immediately after the war is over and for some time thereafter. But for the present, it is impossible to recruit additional people. There is no sense in thinking about going outside because we have not only reached the bottom of the barrel, but we have knocked the bottom through.

In a recent press conference in Washington, the War Manpower Commission pointed out that, within the next few weeks, there would be a need for 500,000 additional people in essential industries.

The only way that this need can be met is by increasing utilization of manpower. The War Manpower Commission has never been designed to tell management what to do. The story of good personnel administration, the technics of production control, of production measurement, of plant layout, efficient processes, has all been written. It has been available for some time. At every conference on personnel problems you hear the same things over and over again.

I recall that a personnel director told me of a very interesting method that he had used to cut down turnover, and after he got through, I said, "Have you ever read *The Principles of Scientific Management*, by Taylor, written in 1911?"

"No, I haven't."

I said, "If you will look on page so-and-so, you will find exactly that technic." So it is interesting to note that we are not bringing anything new to you nor does anything new need to be brought to you. It is available. It is a matter of adapting available information and available technics to your own problems.

The Manpower Commission has the Division of Manpower Utilization set up in various regions throughout the country. The personnel of this Division is composed of two general types of technicians, first of all, engineers, usually mechanical, preferably industrial engineers or men with production experience. The other group of people are men who are trained in personnel technics. The method that is used—and it is a method that can be followed by a company which has the ability to stand off from its own problem and look at it from an unbiased point of view—is to make a survey of the production phases of that plant which

affect the utilization of manpower and to make another approach on the personnel factors in that plant which affect manpower utilization. It is then possible to suggest methods to the employer that either he hasn't had time to think of or has been too close to, to realize were available, so that changes can be made, so that absenteeism can be reduced, so that turnover can be reduced, so that the plant layout can be so revised as to increase the individual productivity of manpower.

Our approach, of course, is not the approach of "speed-up." The approach is to have maximum production and maximum efficiency with the minimum of effort. There are many examples that could be cited. One, for example, is of an organization here in New York City of about 600 employees producing exactly by the same process off the same blueprints, by the same specifications, an army item which is being produced by a company of many thousands in another part of the country. The price of that article to the Government from the small company is one-third the price of the article by the larger company. Both sets of figures are honest. The only difference is that the employees in this little company are producing three times as much. The fact of the matter is that the average salary there is three dollars a week under the factory average for the entire country.

There is something in that plant. They have reached the well springs of those individuals. They have learned how to utilize those people to capacity. We do not claim to have hit everything, but we are able to touch with the assistance of the company the high spots, the rough points in the organization which, if smoothed out, can help to meet the recruitment needs of that plant.

We have been gratified to find out, first of all, that our acceptance has been almost 100 per cent in these organizations. And the acceptance of the utilization technic has been 100 per cent. That is the most encouraging fact. There have been some publications, but not enough, because those of us who are in the work are not able to spend the time to write the things we would like to write, but there have been a few publications pointing the way. One, which I think you may be familiar with, is the pamphlet, *Maximum Utilization of Employed Manpower*, developed by the

Industrial Relations Section of Princeton University, which is a check list of company practice. You might call it a self-analysis that a company can perform in order to find out for itself how it is utilizing its manpower.

Briefly on the post-war aspects, many people will be available for work. We will need as much, if not more, serious consideration of how you can get the maximum utilization with the maximum of happiness all around. You do not get maximum utilization by continual cutting down of time study times, of piece rate times, because you are bound to have holding back. You can get maximum utilization when the employees feel that no matter how much they produce or what additional ideas they suggest for re-engineering of a piece, a new type of fixture or a new jig or a new approach to cutting, that they will be rewarded for it in a positive way.

I recall that during the depths of the depression, the

Philadelphia Record used to run a daily editorial which always began, "Let's fight the depression as we would fight a war." I think that we will have to use that same approach in the post-war period. Let's fight the peace as we would fight the war. If the same amount of effort, if the same amount of enthusiasm, if the same willingness to drop off old technics and to adopt new ones is followed, it seems to me that there can not be anything but an increase in ability to meet our production needs and also to meet the needs of America in terms of an increase in standard of living for every one concerned.

The problem of the utilization of manpower will definitely be as serious as it is today because there it may be the problem not of finding out how many people you can get in addition, but how much can be produced with how few people in order to keep all at a decent standard of living.

Labor's Plan for Solving Post-War Problems (Continued from page 7)

Adequate weekly allowances to disabled members of the armed forces and their families, including the establishment of an adequate re-training program for disabled soldiers.

Full protection for dependents of members of the armed forces killed and wounded in the war, including an education for minor dependents.

These are some of the principal elements of labor's post-war thinking.

I am aware that recent months have seen produced an abundance of blueprints for the post-war world. The Committee for Economic Development, the National Association of Manufacturers, various industry and trade association groups have been outlining their proposals for meeting the problems of full employment, production and security in the years following the destruction of the Axis.

Basically these plans fail because of their failure to approach the social problems of peacetime America

upon a national basis. Almost without exception industry's plans have been proposals simply for ways and means by which individual corporations of particular industries may secure a larger and larger share of available post-war markets. Tremendous ingenuity has gone into answering the question of how to capture markets, while practically no attention has been paid to the basic problem of how to create and maintain that mass purchasing power which is the foundation to prosperity of all business.

Labor's plan presents a sharp contrast with these programs. We do not think in terms of labor alone, but in terms of the nation. We do not think of one industry and one group of workers, but rather in terms of our entire productive forces.

Our entire intention is to help plan for the kind of a nation which will fully justify the sacrifices which our people are making today in the battlefields and on the home front.

How Labor Can Contribute to Manpower Utilization

By JAMES B. CAREY

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I speak to you as a labor officer and, surprisingly enough, as an employer. President Murray is the chief executive officer of the Congress of Industrial Organizations. I am honored by holding the position of chief administrative officer so I have considerable experience as an employer. We have offices in practically every industrial city in this country and we have our personnel problems. We operate a chain of newspapers and, of course, we have, as labor leaders, every problem that confronts every employer, including making out sheets for the governmental agencies and determining social security taxes and whatnot.

We think this problem of labor utilization is not just a problem confronting this Society in time of war. Americans are paying heavily for mistakes made in the past. We can work up a lot of enthusiasm about the man-hours lost as a result of a labor dispute. But we overlook sometimes the man-hours lost as a result of breakdown in bargaining between business and business, or their jurisdictional strikes over patent rights, or the breakdown in negotiations between Government and business in the allocation of Government contracts, the determination of proper contractor relations and other questions. We have, according to conservative estimates, 16 million man-hours lost every day at the present time. That is an amount equivalent to two million men in a time when we are told we have a manpower problem.

There are reasons for that. One is that it has been the practice of business in this country to deal with a large supply of labor at all times. We had at one time about eleven million people unemployed. We came through a whole decade when we had any number of people standing at the plant gate willing to take a job at a few cents an hour less than the person that was then employed in that position.

So employers developed practices with the idea in mind that they did not have to give the consideration to planning their labor use as they plan, for instance, material. As a result of those practices, we have the sixteen million man-hours going to waste every day at the present time in industry. This is due to absenteeism and to other questions, the most important of which is a lack of proper planning.

We will hear discussed on the floors of Congress in a short time whether or not Public Law 45 shall be extended. That law resulted from deliberate whipping up of a lot of feeling in this country that the farmers did not have sufficient manpower to produce their crops and their crops would go to waste on the land. It gives the county agents the right to retain in a county large pools of unemployed people in order that the farm operators in that area will have sufficient people to use at their convenience.

They have certain practices that we think should be eliminated before any such law should be enacted. For instance, one lobby pressing for this Public Law 45 is in the citrus belt. When they receive an order for a certain size grapefruit, their men are sent out into the groves with their ladders, carrying over their arms steel rings. The size of the grapefruit desired is stated in that particular order. The workers test the steel ring against the grapefruit until their eyes become accustomed to selecting the proper size. The grove is thus stripped of that one size of grapefruit and when another order is received, the same process is repeated. Sixty per cent of the time is taken up in moving the ladders from spot to spot. Instead of providing proper storage space and selecting the fruit as it ripens, they would rather leave the fruit on the trees to prevent the need of refrigeration. That practice wastes manpower.

Although the war has forced us to tap new labor sources, prejudices against minority groups still are widespread! There was a time during the depression when a member of management could set arbitrary policies. Some large company might decide it would prefer to employ graduates of parochial schools. Some other group might decide they would rather not have Negroes. Others would say, "We would rather have men and not women." Of course, they had a lot to choose from. They had plenty of time and they had plenty of people. They could select as they wanted.

Today we must break down those prejudices. We must have the full utilization of all our minority

groups. We must make certain there is proper upgrading. By such methods the effective supply of labor can be greatly enlarged.

Before the war, if you wanted to increase your production 15 or 20 per cent, you increased your man load by 15 or 20 per cent. We find that today employers sometimes practice the same technic. Instead of increasing production, it results in a demoralization of the whole plant. It contributes to lowering of productivity because the morale is shot when workers are standing around without sufficient work to do.

A lazy man's answer to manpower problems is, "We need national service legislation." But there is quite a difference between working for a private employer at a profit and being selected through conscription by the Government for the armed services. Compulsory labor service would break down morale and endanger the entire system of production in this country.

The workers think that you have to consider the problems of housing and rationing to solve manpower difficulties. Lack of community facilities likewise contributes greatly to absenteeism and labor turnover. The nation's industrial front is different from what it was several years ago. New methods of approach will have to be taken into consideration.

You will have to have a better coordination of your production engineers and your hiring policies in a company. You will have to have better data in order to meet this problem of cutbacks. Instead of laying off in one department and hiring in another department, before the layoffs take place you will have to give consideration to transfers rather than discharges and rehiring.

There will be insistence in the future by organized labor and other groups that we must make it more expensive to keep a man unemployed than it is to keep him employed, that the old technics of dealing with labor will not suffice in the future. The Government is going to have to accept responsibility for making up the difference between full employment and what private industry is able and willing to do towards supplying a job for every individual able and willing to work. If private industry fails to do the job, the Government must.

I am certain that Henry Ford will agree that the CIO knows something about methods of organizing workers at the job, and so will United States Steel and General Electric and Westinghouse. Unions know organizing technics and they can evaluate efficiency in utilization of manpower. They know something

about seeing that the right man is in the right job. Why not ask them, why not bring them into this problem, not alone developing better methods from a mechanical standpoint but bringing them in on the question of better utilizing the manpower in the plants. If that is not done, and done immediately, it will be necessary for the Government to establish utilization experts in the plant who will give more than counsel in determining whether or not an employer can hire from the open market.

We say to the members of management this is a mutual problem and labor is anxious and ready to contribute its proper share in terms of helping in advice and guidance in meeting a problem that we do not think can be met on the legislative front. We do not think a national service act is going to eliminate one iota the problems growing out of our mistakes of the past. In the future we say this question of labor utilization will be the determining factor as to whether or not our system of society will continue.

We cannot operate in the future with large mass unemployment. If we do not provide 57 million jobs in this country when this war is over, after the transition period, we will lose democracy, the very thing we are fighting for. For with 21 million people engaged in producing weapons of war, with almost 10 million people in the services and with the millions of people directly engaged in contributing to the war effort, we can measure the future unemployment in this country as being close to 30 or 35 million if we do not plan in a better fashion the utilization of labor. With 30 million people unemployed in this country, you can be certain that you won't have democracy. You can be certain that you will not be able to say to a man trained as a commando, "You may now sell apples on a corner at five cents apiece." I don't think they will take it. I don't think labor will take it in the future. I say that we have a serious problem confronting us today. We will have to develop newer and better technics in providing employment and utilizing our resources, our manpower resources in this nation. We think we can do it.

If we take the value of our plant and equipment prior to the defense effort, according to the internal revenue figures, our plant and equipment was worth 22½ billion dollars. Of course, that is an amount for tax purposes and it is much larger than that when we consider the replacement value of our peacetime plant and equipment. It would cost about 50 to 60 billion dollars to replace all our peacetime plants and equip-

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"The Buffalo Plan"—An Example of Manpower Utilization

By PAUL R. SMITH

Manager, War Production Board, Buffalo, N. Y.

A presentation of the "Buffalo Plan" and its results as it pertains to utilization of manpower should not be attempted without first developing for you a picture of the industrial interests of the Niagara Frontier and its importance as a producer of basic products together with a background of information regarding normal working conditions within that area.

The Niagara Frontier comprises Erie and Niagara Counties which include the two major cities of Buffalo and Niagara Falls. Buffalo is the second largest city in New York State. It is the largest port on the Great Lakes in value of tonnage handled and is the world's greatest maritime grain distributing center. It is served by twelve railroads, is the western terminus of The New York State Barge Canal and ranks as one of the country's greatest industrial and manufacturing centers. The industrial activities of Erie and Niagara counties before 1940 were the all-important chemical industry in Niagara Falls, steel mills, brass rolling mills, blast furnaces, milling and grain elevators and numerous old established manufacturers of machine tools, marine motors, foundries and sundry so-called heavy industries.

The very nature of these plants and industries with their wide diversification has been responsible for the healthy economic growth of the Niagara Frontier. Inasmuch as the activities of this area were not confined to any one industry, it escaped some of the unfortunate experiences of other areas during the depression years. These companies and industries are so basic that undoubtedly under war conditions their output would be in such demand as to tax to the limit our available manpower.

Since the late 30's this area has witnessed the expansion of production facilities of two enterprising and thriving aircraft companies, namely, Curtiss-Wright and Bell Aircraft. Also, the entrance of an entirely new plant and industry in the Buffalo Arms Corporation. In addition to the mushroom growth of these three companies, there have sprung up smaller subcontracting companies for these prime contractors. Thus, we have seen superimposed upon our basic, and for the

most part, heavy industries, these so-called glamor plants requiring a substantial number of employees.

The population of this area is approximately one million people of which, prior to 1940, 329,570 were engaged as workers in our plants. Today, with the population of these two counties remaining still at approximately one million, approximately 411,476 are employed of which number close to 90,000 are employed in not more than a half dozen of these so-called glamor plants. It is not therefore necessary to call upon our imagination to understand the impending problem that was rapidly developing as our workers were leaving our so-called heavy industries and gravitating to these newer and more appealing light industry plants.

In the latter part of 1942 it became apparent that the manufacturers in Erie and Niagara counties would not be able to meet their production schedules on orders received from procurement agencies or prime contractors without additional manpower. The first impact of this problem was felt through the practice of pirating of labor which, obviously, did not solve the problem but aggravated it to the point where production per man hour was substantially reduced.

In the latter part of 1942 the industrialists in submitting their 270 reports to the United States Employment Service indicated an estimated need for additional manpower for the first three months of 1943 in the amount of some 70,000. Taking these reports at their face value, the War Manpower Commission declared Erie and Niagara counties as being a No. 1 critical area.

Development of the Plan

In October, 1942, a War Manpower area office was established and shortly thereafter the area committee was appointed by the Regional Manpower Director. This committee consists of four representatives of industry or management and four representatives of labor, two each from CIO and AFL. This committee serves only in an advisory capacity and is set up for the purpose of studying the manpower problems and making recommendations to the area manpower director.

As 1942 came to a close the situation had become so acute that some sort of controlling agency should, of necessity, be developed, the object of which should be to provide some method of channeling available manpower to those plants where needed. After many months of negotiation and work on the part of the Area Manpower Committee, a controlled referral plan was developed and submitted in April, 1942, to the Regional Manpower Director for approval.

Just prior to the proposed effective date of this plan the Office of Economic Stabilization issued its hold-the-line order which necessitated certain revisions in the proposed referral plan. After considerable study the Regional Manpower Director promulgated the controlled referral plan to become effective on June 14, 1943.

The principal feature of the plan, as promulgated, required *all males* to be referred to employers through the United States Employment Service. Female workers were not affected under this plan.

At the time the plan became operative, June 14, there were approximately 1300 males cleared through the U. S. Employment Service each day. As the public schools were closing, about 500 of this 1300 were high school boys looking for summer work. The balance, for the most part, were workers desiring to change from one essential job to another or workers coming from less essential industries—and a few in-migrant workers.

Operation

The plan provides for a labor requirements committee whose duty it is to place essential companies on a priority list indicating to The U. S. Employment Service the plants in need of male labor. This committee is composed of a representative of the Army, Navy, War Manpower Commission and War Production Board. The chairman, Mr. Edward J. Barcalo, is a highly respected, retired industrialist. The chairman had no vote. We also have sitting in, as advisors, representatives of The U. S. Employment Service, Office of Defense Transportation and Selective Service.

At that time the common talk among people in all walks of activity and interests was to the effect that these newer, light industry plants were overmanned, thus penalizing the area as a whole by bringing about a condition whereby the heavy industries were steadily falling behind in meeting their production schedules.

The Labor Requirements Committee immediately set about to develop a plan whereby available man-

power would be referred to the heavy industries which, for the most part, were chemical plants, heavy machine shops, steel mills and foundries. To this end a general policy was adopted whereby these lighter plants were not placed on our labor priority list and the most important of the heavy plants, where information indicated the most urgent need for manpower existed, were immediately placed upon the list.

At the outset our Labor Requirements Committee met every few days when we received applications from plants desiring additional manpower. At that time we were receiving from Washington information as to the most important over-all war production program. We were, therefore, able, by determining which individual plants were working on contracts related to this National Program and where they were behind in their production schedules, to place these plants in a position to receive referrals from The U. S. Employment Service.

As our program developed and took more definite shape we were able, through information obtained from the members of our committee representing the Army, Navy and War Production Board, to make local determinations as to which plants were in actual need of manpower to enable them to meet production schedules.

The controlled referral plan is not controlled hiring. The plan provided that the employer was not compelled to hire the applicant nor was the worker compelled to accept the referral. In the event the worker for some reason or another chose not to accept the referral, he was then referred to another plant. In every case the worker was referred to a plant that needed his particular skill.

Within a short time we discovered that there were certain manpower needs by industries and companies that did not have prime contracts from Procurement Agencies and yet were essential as subcontractors or for our civilian economy, such as small machine shops, steel warehouses, storage warehouses, motor transportation, food processors, scrap yards, etc. We then broke our priority list into two groups, namely, "A" and "B" lists.

On the "A" list we placed those plants that had direct procurement prime contracts, which plants were behind in production schedules. A prime contractor manufacturing a most essential end item which was found to be meeting production schedules was not given consideration nor was it placed on our "A" list. On the "B" list we placed those companies operating

in the field of subcontractors or essential civilian activities.

Instructions were given to The United States Employment Service to make first referrals to plants on the "A" list and, when the requirements of this list had been fulfilled, to refer additional workers to plants on the "B" list, bearing in mind that the worker should be referred to a plant where his highest skill could be utilized.

While the plan called for all males to be referred through the U. S. Employment Service, certain traditional hiring halls were approved which could send workers to plants with whom they have contractual relations without clearing through The U. S. Employment Service.

All plants placed on a priority list were permitted to recruit outside of the Erie Niagara Counties area. The attempts made for out-of-area recruitment have not proven successful. It therefore became apparent that increased production could best be met by, first, an equitable distribution of manpower and, second, better utilization of existing manpower. The plan, recognizing these two essentialities, has endorsed the organization of Labor-Management Production Drive Committees.

Success Dependent on Small Committee

Whatever success the Buffalo controlled referral plan might have experienced I believe can be attributed to the small labor requirements committee and its ability, through avenues that were open to our Army, Navy and War Production Board Representatives, to determine specifically the needs of those plants applying for manpower assistance. Each member of the committee, recognizing the importance of the part they had to play, at no time permitted any selfish interests to influence their judgment. Every decision made by this committee was unanimous. A reasonable presumption would be that a larger committee would not have been as effective.

In reviewing the operations of the controlled referral plan for the past six months, it is an indisputable fact that we have been able to permit heavy industries more adequately to meet their production schedules without interfering with the production program of the lighter industries. The lighter industries, realizing their inability to secure referrals, have produced remarkable results by the further recruitment of

women and by better utilization of manpower which they have.

While this plan has not reduced the turnover as anticipated, we find that the rate of turnover has not increased. From June 14, when the plan became operative, through November 13, there have been a total of 69,282 referrals by The United States Employment Service and during that same period 15,848 were referred back to their present employer and not given releases.

Recent Developments

As of this date we find a different picture developing. The number of males applying to The United States Employment Service has been reduced from some 1300 per day in mid-summer to about 250 per day. The quality and quantity of the applicants today make it necessary for the Labor Requirements Committee to review requests for men more carefully. With a few exceptions we no longer will place a company on the list on a so-called blanket basis. We determine through investigations by the Army, Navy, War Production Board or War Manpower Commission the actual manpower needs to enable the plant to meet its required schedule and when this need is determined the plant is placed on the list for a given number of men. When this number has been supplied the plant is automatically removed from the list to enable us more equitably to distribute available manpower to more plants.

Obviously, the plan leaves a lot to be desired. A perfect plan meeting all essential requirements can probably never be developed, but war emergency dictates a policy of immediate action to formulate a workable plan, even though not perfect. Such a plan can be developed through the unselfish cooperation of procurement agencies, industrial management, organized labor and those groups engaged in our civilian economy. Unquestionably, through experience, modifications for improvement will present themselves. It can, however, be safely said that production in the Buffalo Niagara area has been substantially improved as a result of our controlled referral plan. Without such a plan we would have undoubtedly witnessed an ever-growing number of transfers to lighter industry plants to the very definite detriment of the all-important heavy industry plants and essential civilian economy.

American Management—Observations as to Its Strengths and Weaknesses

By THE HONORABLE HARRY S. TRUMAN

Senator from Missouri, Chairman Special Senate Committee to Investigate the National Defense Program

LIKE most of you, I am confident that everything necessary to establish a prosperity beyond anything that we have ever had before is available to us. During the war, we have constructed hundreds of the finest and most modern factories. We have equipped them with hundreds of thousands of the newest and most efficient machine tools and we have trained millions of men and women to operate those tools. We have developed new materials and new processes of manufacturing. We have also expanded our capacity to produce materials and have made available for every-day use in large quantities materials that formerly were relatively rare and costly.

Consequently, at the end of the war, we will have the factories, the tools, the labor supply, the materials and the processes of manufacture on which we can found the world's greatest prosperity. The job is up to us as individuals. If we fail, the failure will be due to ourselves and not to lack of opportunities. We must go forward, we cannot go backward, because the war has made so many changes in our economic life and you can't turn the clock back.

Thousands of established businesses have been eliminated. Many millions of people have been moved from their former homes. During this war, the Senate Committee investigating the war program has watched all these changes take place and has noted the far-reaching effects of the war program upon every phase of our economic life. But we have created a production. We have succeeded in creating the greatest production effort that the world has ever seen. We have created a production effort that has won the war, and will win it. And the winning of that war is due to our ability as organizers of production. Isn't it a pity that we couldn't use that production effort to make the world a happier place in which to live in peace! I hope we will learn how to do this.

Our Committee was organized by the Senate for the sole purpose of minimizing the cost of the war in lives and treasure. To this end the Committee has constantly examined and re-examined the projects to increase our basic materials with the hope that they might be able to furnish us with a plentiful supply of cheap raw materials and that business could convert into new and better and cheaper consumer goods. If

business can do this, we can continue to lead the world in industrial progress and can continue to pay the highest wages for labor in the world. Fundamentally, this can only be done by producing the best goods in mass quantities at the lowest costs so that there will be sufficient employment and purchasing power to assure widespread distribution among all the people, necessary to effect a sound and healthy economy.

This vast debt of ours cannot be retired or serviced unless we can maintain our national income and that means fair pay for business and for labor and for farmers. Every one agrees with this objective but to achieve it, there must be cooperation, hard work by government, business, farmer and labor. I believe that the objective can be best achieved by the Government determining as soon as possible its policy on certain fundamental points in order that business may know the conditions under which it will have to operate. Within those standards, business should be left free to make its own determinations.

We must not regiment business, because to do so will stifle progress. But business cannot operate on a public-be-damned policy. Business must display statesmanship and operate in the public interest as well as its own selfish interest.

During this war, it has been necessary for the Government to create many agencies which have been controlled and which dole out materials. Such action was necessary because wartime scarcity required that materials be channeled to their best uses. The agencies were headed and in most cases staffed by business men. Their efforts were sincere and in most cases successful. But these controls were justified only by the necessities of war and should be eliminated as soon as possible at the end of the war.

One of the most important of our problems is the termination of contracts. When you terminate the prime contractor's contract, there ought to be the same sort of a termination with the subcontractors, because while there will be a great scream about the Government being in a big hurry, if you leave the subcontracts to the prime contractor, he will out-govern the Government.

Another major problem is that of inventories. There is general agreement that the material situation is getting relatively easier. The experience gained on previous contracts should enable manufacturers to know more definitely what they need and to limit their purchases more closely to their needs.

No matter how well we handle this problem of inventories, the Government will possess at the end of the war huge stocks of materials which will have to be disposed of. If the quantities are very large and the job of marketing them is not skilfully handled, the markets and the confidence of business may be so seriously disturbed as to retard the conversions from wartime to peacetime production.

This problem will be particularly acute in the case of machine tools, hundreds of thousands of which have been manufactured during the war. Steps should be taken now by the Government agencies involved to determine which of these tools the Government wants to keep after the war. The rest of the tools should be classified into their several types and kinds and a fair price determined by type and kind. These prices should be the same, irrespective of the agency which now holds the title to the tools and the job of determining the appropriate prices is one that I believe the War Production Board could profitably take up now with price-determining agencies.

The companies operating these tools for the Government should be given a reasonable opportunity within which to indicate whether they desire to acquire the tools, after which the tools, their prices and locations, should be listed by the War Production Board and made available for purchase by anyone desiring them, subject to delivery as soon as they are no longer required for war production. This procedure would assure that the Government sets a fair price, even though it would be substantially less than the inflated cost of producing tools in wartime and would prevent the tools from being sold in mass lots to speculators who might keep them from being used in production.

Also, many established concerns will be able to modernize their production facilities and to plan new processes of manufacture now with a knowledge that the necessary tools will be available when needed.

In any event, there will be large surpluses of new tools for which there will be no immediate use and old but not worn-out tools which will have to be replaced by new and more economic ones. Unless we can do something about this, these tools will overhang the machine tool market and will tend to prevent the production of them, of new and improved machinery, and

the employment of thousands of workmen who were engaged in the machine tool industry before the war.

Mr. Donald Nelson has suggested privately to our Committee that it would be very desirable if appropriate arrangements could be made with foreign countries that will require machine tools, particularly Russia, for us to trade them surplus machine tools for a stock pile of basic materials such as manganese, nickel, tin and chromium. We have used great quantities of these materials during the war and for purposes of national safety, it would be very desirable to create an immobilized huge reserve of these materials for use only in times of emergency. It would be much more valuable to us than the huge stores of gold at Fort Knox, or surplus of machine tools which are not needed and each year will gradually become more obsolete.

Another problem concerning which many of you are worried is that of disposing of government property in the privately owned plants. To convert these plants from peace work to war work, it was necessary in most cases that the machine tools be rearranged and frequently that they be taken to different buildings. It will not be possible to resume production until the last item of Government material has been made and the manufacturer is free to remove the tools which the Government furnished him, and to rearrange his own tools. In some cases, some of these tools that were formerly key tools were not used by him in war production and were sold or leased to others. They will have to be re-acquired or replaced. Jigs and fixtures for items of war production will, except in rare cases, have no value because even if we should be so unfortunate as to become engaged in another war in twenty years, the changes in war material will be such as to require new jigs and fixtures and to make it unprofitable to warehouse and store those we now have.

The procurement agencies should determine now those that they want to retain and upon the termination of war contracts the manufacturer should be authorized to scrap them for the Government account with a minimum of red tape. General instructions should be prepared for the manufacturers telling them how to handle Government equipment. Valuable inventories and tools should be adequately cared for in warehouses, if readily available; but if necessary, by being stored outside and covered with tarpaulins or other waterproof material.

Another problem which faces business is that of obtaining adequate working capital with which to

finance the lag between the time when plants are being tooled, jigs and dies are being built and materials are acquired for processing on one hand and the time when finished goods can be delivered and the payment therefor received. After this war, we hope to have a civilian business much greater than that during the pre-war peacetime years, yet the working capital of our corporations is geared to a peacetime economy which after the five years, 1935 through 1939, averaged only about 82 billion dollars per year. Some corporations have been able to improve their financial condition during the war. But by and large, taxation and renegotiation and the efforts of the procurement agencies to prevent excessive profits have prevented corporations from greatly increasing their working capital at the expense of the Government. This is as it should be, because we have been determined that there should be no profiteering in this war. We started out with a premise that no millionaires should be made by the blood of our men at the front. But despite certain taxations which will assist corporations in meeting post-war problems, many corporations will not have sufficient working capital. This is especially true of those businesses which have been greatly expanded during the war and upon whom hundreds of thousands of people are dependent for employment after the war. When we attempt to convert war production to peacetime production, many corporations will find that their marketing organizations and practices will have to be modified substantially. Others will find that it will be necessary for them to carry the cost of production for a longer period than they have previously been accustomed to. Some will be new businesses which have little or no pre-war experience in marketing organizations.

All this will require additional working capital which should be obtained so far as possible through the sale of bonds and stocks to private investors who have confidence in private organizations and are willing to invest their funds in the future. To the extent that private banking has the facilities to bring such inventories and corporations together, it should be encouraged to do so. Measures to expedite and facilitate this should be considered and adopted, consistent with the protection of the investing public to insure against a repetition of the financial frauds and excesses of the 1920's. To the extent necessary, and only to the extent necessary, the Government should supplement private banking where private banking is not able to do the job, but should not try to supplant it or to place the Government in control of business. Every effort should be made to induce

business to obtain working capital through the investing public and not by loans from or guaranteed by the Government agency. It is vitally important that the conditions upon which private and Government loans can be obtained should be determined as soon as possible so that business men can know the amounts that they will be able to borrow and the terms under which the funds can be obtained.

In general, the corporations which can be relied upon in the production of war goods and which made good records in such production ought to be regarded as worthy of financial assistance through loans for working capital purposes, so long as care is taken to provide practical banking standards for the protection of the Government and to prevent favoritism and discrimination in the distribution of the funds.

Another important problem is that of the acquisition by lease or purchase of plants and facilities erected for the war program at the expense of the Government. Some of these plants and facilities will be retained by the Government for stand-by warehouse and other special purposes, but most of them should be made available for use in the production of civilian goods. Some companies have options to acquire plants and facilities operated by them and, consequently, are now in a position to determine whether they want them, but many contracts do not contain option clauses. In such cases, it will be necessary for the Government to determine the conditions under which it will sell or lease the plants and facilities. This should be done as soon as possible. In determining these conditions, care must be taken to make sure that no gift of Government-owned facilities is made to favored corporations; but at the same time, there must be a realistic realization that construction costs are considerably greater in wartime than in peacetime, that the facilities were especially designed for production of particular war items and that an equal expenditure of labor for facilities designed for producing specific goods would produce a superior plant at lower cost in peacetime. The Government must be prepared to sell or lease these plants and facilities in accordance with their true value to those interested in acquiring them. Any other policy will simply prevent their acquisition and use to provide employment and to manufacture civilian goods, and the Government will be left with a number of valuable but unproductive plants.

We are fighting a war to preserve this nation. When those who are fighting it return, they should find the nation worth fighting for. That is your job and mine to see that they do find it that way.

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Forecasting the Management Problems of 1944

By LEO CHERNE

Executive Secretary, Research Institute of America, New York

DURING the past two years American enterprise has performed the almost incredible task of converting our nation from a militarily inferior power to the strongest and best armed force in the theatres of war. The brain and brawn of our military might have stopped Goebbels' and Tojo's jeers and given them the jitters instead. The rising crescendo of our battleships, planes, tanks and block-busters has been supported and matched by the accomplishments of American enterprise on the home front.

Management and labor have fully justified the expectations and exacting demands of our military leadership. Only an Olympian observer or a future historian can fully appreciate the accomplishments in converting from a civilian economy to a total war economy in the short span of two years. Occasional strikes, frictions and managerial incompetence are but scattered, isolated flaws on an imposing canvas of overwhelming impressiveness.

Anyone who attempts to forecast economic events is, therefore, tempted to take an optimistic view. It would please our ego to assume that our wartime unity of purpose, single-mindedness of action, and unqualified determination will continue undiminished even after victory in Europe is won.

Such a forecast for 1944 would be neither true to facts nor cognizant of the forces operating beneath the surface of our economy.

A sound prognostication of coming events cannot be based either on a mere projection of the past trend nor on wishful thinking. To be acceptable it must envision events that are either certain to happen or which will occur with a high degree of probability. It is against the background of such probable events that we can trace in broad outlines the scope and nature of the problems which will confront business management.

Let me summarize at this point the events which in my opinion will occur next year. They are the events that will form the backdrop against which American business management will be called upon to perform its responsible tasks.

First, the only event that will happen with certainty in 1944 is the election in November.

Second, less certain, but probable, is the defeat of Germany which will in all likelihood occur between the late Spring and early Fall.

Third, the inflationary spiral will get into motion again shortly after New Year.

Fourth, manpower and womanpower shortage will grow in intensity during the first half of the year but will lessen perceptibly during the second six months. This trend will be paralleled by an increase in the number of men discharged from the Services because of injuries suffered in battle, physical incapacities, over-age, and some decrease in the size of the Services after the defeat of Germany.

Fifth, growing labor unrest in the wake of reconversion. Its symptoms will be a revival of jurisdictional disputes, a fight for the preservation of wartime gains in rates of pay, and a demand for a reduction in hours of work.

Sixth, the adaptation of the wartime priorities system to the needs of an economy partly released from the requirements of total warfare. This means, in the phraseology of leading government officials, "priorities in reverse."

Seventh, a gradual acceleration in the rate of cut-backs of war orders accompanied by a shift in the weapons of war that will still be manufactured.

And last a political climate loaded with dynamite because many decisions on important economic issues will be left hanging in mid-air. They will be left hanging in mid-air for the simple reason that partisan interests and conflicting political ambitions tied in with the November election will prevent real action.

In summary, 1944 promises to be a year in which we shall witness the defeat of Germany, the revival of economic frictions, and a widening gap between the legislative and executive branches of our government.

Thus, management will face, for the first time since Pearl Harbor, a host of new challenges. Some of these challenges will be unprecedented. They will be the long-range product of the war itself and its impact on our economic thinking and vision. Some challenges will be the temporary consequences of an economy converting from total war to a partial war footing. And some challenges will represent a re-emergence of pre-war problems that were unsolved on the day of

Pearl Harbor and have been suspended during the period of all-out war.

Problems Ahead

Let me now trace for you the details of the pattern of managerial problems that in my opinion lies ahead.

First, the war has been directly responsible for a world-wide acceptance of the belief that nearly full employment of manpower and maximum utilization of productive capacity are within the realm of the possible. The records of war production are an eloquent testimony to this fact. In every country governments have succeeded, under the terrific pressure of war requirement, in reaching a level of production and a rate of employment unprecedented in the history of each of those countries. The old nineteenth century economic doctrine that the weapons of war can only be forged at the expense of the civilian plow-share has been disproven. We've shown that we can produce guns *and* butter.

Look at our own current record. In the year 1943 we shall have produced a gross national product of almost \$190 billions. After full allowance is made for the increase in the price level since Pearl Harbor, this still represents more than \$150 billions in gross output or an incredible increase of 50 per cent above our total pre-war output. And all that within the short span of two years.

At the same time, our volume of consumers' goods produced in 1943 will be greater than in 1941. We have, in other words, accomplished the herculean task of superimposing the war economy upon a record-level civilian peace economy. While creating the greatest arsenal of military weapons in the history of this or any nation, we have succeeded in providing for our civilian population a greater volume of the necessities of life and semi-durables than we ever produced in our most prosperous peacetime years.

Does anyone seriously believe that this new lesson in economics will be forgotten in the climate of peace? I do not. And, I am sure, neither do you.

Fifty-three million men and women gainfully employed and 10 million more in the Armed Services have witnessed the miracle. They have seen how American ingenuity translated into reality a blueprint which a short two years ago was regarded as fantastic not only by our enemies, but also by quite a few in our own midst. Will it surprise you if these 63 million men and women at war's end demand that we do almost as well in peace as we did in war in creating opportunities for employment and a vol-

ume of output commensurate with our present accomplishment?

True, this opinion will not become fully crystallized in the second half of 1944. The spectre of four million unemployed at the end of 1944—the estimate of the Research Institute—will not stir up any violent reactions. It will be accepted as the inevitable short-run consequence of partial reconversion. It will be accepted with many mental reservations. Management will not be blamed for the occurrence of unemployment at that time—at least, not yet. But management will already be on trial just the same. Its failure in the second half of 1944 to lay the groundwork for increased employment opportunities after the defeat of Japan—which will probably occur between 12 and 18 months after the surrender of Germany—will certainly cause unrest and perhaps even serious convulsions in our economic and political body.

Thus, thorough, comprehensive, and effective post-war planning by business both collectively and individually becomes the foremost responsibility of management in the coming year.

The second challenge to management will come from the inflationary spiral. Present indications point very strongly to the probability that the anti-inflation dam is going to be breached early in 1944. The fissures will be small at first. But they will widen and widen rapidly under the repeated onslaughts that will come from wage earners, farmers, businessmen and other groups. These pressures will grow in intensity as the defeat of Nazi Germany grows more certain.

At the same time, complaints about economic inequalities that have been more or less dormant during the crucial years 1942 and 1943 will echo louder and louder across the political arena. And they will find a receptive ear because of the approaching election.

Here I come to one of the paradoxical and, at the same time, most serious features of the inflationary spiral. As long as inflation is nothing but a future possibility, fear of its consequences is usually sufficient to keep everyone in line. Neither individuals nor groups are willing to start the avalanche. But, break the line at any one point, set the spiral in motion, even though slowly, and a mad scramble follows. Every group stampedes for the inflationary bandwagon; caution and reason are cast to the wind. Everyone tries to salvage for himself a maximum of what he believes to be anti-inflation protection by pushing for as much of an increase in his price as he

can possibly obtain. That he thereby accelerates the rotation of the spiral and its destructive effects escapes him.

The spiral can be checked only if there is firm determination on the part of the legislature and the executive to apply drastically and unhesitatingly strong measures. Unfortunately, I can't be optimistic about such prospects. Knowing the political climate in Washington, I fear that the inflationary spiral will be permitted to run its course, at least until the defeat of Germany.

Inflation and all that it implies poses, therefore, the second set of problems for management. In fairness to its stockholders and investors, management must protect the real value of its equity and assets. In fairness to its workers, it must adjust their wage scale to the declining purchasing power of the dollar. In fairness to the market, it must keep prices from running wild.

The charting of a safe course through the dangerous reefs of inflation will be made more difficult by the fact that Germany's defeat will in all likelihood be followed by a decline in business activities in a number of our economic segments. Areas which have been fully converted to war production and which will suffer a severe cut-back in orders will experience a rising volume of unemployment, shrinking markets, and unused capacity.

Other war areas will be able not only to maintain their present level, but to intensify their production schedules because of the shift in war demands. Expanding prosperity in some parts of the country, maintenance of the present high level in other parts, and depression conditions in still other parts—such is the economic outlook for the second half of 1944.

The third challenge will arise in the labor market. Until Germany is defeated, both manpower and womanpower shortages are apt to increase. Manpower will become an increasingly more serious problem as the Armed Services approach the limits of their scheduled sizes. At the same time, shortages in the available supply of women will become more acute. It is unfortunate but true that women have been quitting jobs in industry at a faster rate than replacements have been coming in.

This tendency set in with the defeat of Italy and has been accelerated by the favorable news from the various theatres of war. The outward movement of women from industry promises to continue at a faster pace after the defeat of Germany.

Manpower help through a national labor draft

law is unlikely. It will be up to management to do everything in its power to stop the withdrawal of women. By now it should be obvious that the wheels of municipal governments turn far too slowly to be of any material assistance in this job. Although the hour is late, it will still be possible for management to adopt in the first half of 1944 some measures that will enable housewives, mothers, and single women to do a full job in industry with less inconvenience than at present. Although the end of Hitler is in sight, management must never forget that this end can be hastened or postponed by our success or failure to produce the maximum volume in a minimum of time.

After the defeat of Germany, labor problems will increase rather than diminish. The number of wounded soldiers who will be demobilized will grow rapidly as the second front is opened up. Management has not only the legal but the moral and inescapable duty to provide employment opportunities for these returning warriors who have fought our battle. These men will pose a problem for personnel management that calls for the exercise of tact, understanding, and full cooperation in facilitating and expediting the readjustment of these ex-soldiers to industrial life.

After the defeat of Germany the rate of demobilization will probably be stepped up quickly. These men, too, although not wounded in battle, pose a problem of readjustment. For them, too, an effective solution must be found. There is no precedent in our history for the number of men who will return from Army life to industrial life. Nor is there a precedent for the determination of these men to obtain jobs rather than relief, to sell their skills at the work bench rather than on street corners.

The fourth challenge will come from the dismissal of workers in war industries and the reduction in working hours. These are sure to follow our victory in Europe. They will cause both labor unrest and jurisdictional disputes. While everyone knows that weekly pay envelopes in many industries have increased very substantially during the war, it is no longer a secret that trade unions and other labor organizations will fight hard to retain their wartime gains in basic hourly rates. They will also fight with equal stubbornness for the preservation of their jobs.

If we are to emerge from this war into an era of sustained high level of production, then jobs are the key. These jobs will have to be provided by business management to assure itself of a market able to absorb our national output. These jobs will have to be provided by business management if free enterprise

is to continue as the driving power in our economy. It is wishful thinking to assume for one single moment that continued large-scale unemployment will be accepted any longer as the inescapable consequence of an immutable economic law.

You, the managers of American business enterprises, should and must realize, even if many of our economic theorists have not yet done so, that two basic laws that were widely hailed in the nineteenth century have been repealed by the irresistible forces of economic life in the twentieth century. I am referring to Malthus' law of population and the law about the inevitability of the business cycle and its by-product: unemployment.

These two laws have been accepted for more than a century as inexorable. They have been looked upon as natural laws above and beyond the control or power of man.

Malthus advanced the view that while the food supply could be increased in an arithmetic ratio—1, 2, 3, 4, 5, etc.—population had the tendency to grow in a geometric ratio—2, 4, 8, 16, etc. Thus, Malthus concluded that population would grow at a far greater pace than the food supply. The only major checks to this unbalanced ratio were seen by Malthus in the periodic recurrence of wars, misery, disease: in brief, a high mortality rate.

The second law said that in a dynamic economy dominated by free private enterprise, the periodic ups and downs of the business cycle are the price which we must pay so that the strongest may survive and the weaker elements in the business community be eliminated. Unemployment flows as the consequence of this process of elimination of the inefficient and inferior producers and competitors.

To be sure, those who formulated these laws were not at all sanguine about them. However, they saw no other alternative except the absence of private enterprise. Since they looked upon the presence of private enterprise as infinitely more desirable than any other economic system, they were willing to accept insufficient food supply and its consequences, as well as unemployment and its effects.

Hitler has repealed the law of Malthus, and the law of unemployment.

Hitler will soon have disappeared both from the political and economic stage of the war. But the fact and the record will remain after his exit. The fact is that Hitler was one of the first men in responsible public office to recognize that the Malthusian law of population no longer applied. He realized that it

was not the shortage of food supplies which led to wars in the twentieth century, but the presence of unused manpower. He skillfully took advantage of the fact that a large army of unemployed may be easily induced to don uniforms, forge the weapons of war, and seize the productive capacity of other countries, thus creating additional employment opportunities for the conquering nation.

Hitler next realized that the unemployed can be put to work by the State even though their accomplishments were not "profitable" as measured by the yardstick of free enterprise.

Thus, the Fascist State represents a functional disproof of the two nineteenth century laws. We can see clearly now that a third World War will become inevitable and will be far more brutal than World War II unless available manpower is used constructively in creating goods and services for the satisfaction of human desires. Unless we accomplish this task, no economic law, no social philosophy, no man or group of men on earth can stop another holocaust.

The second lesson we must learn is that the national government cannot stand passively by while the business cycle takes its own course and creates ever more violent fluctuations. And it doesn't make any difference what the political composition of that government happens to be. The national government in the twentieth century cannot afford either politically or economically to fall from a record level of prosperity into the depths of depression and unemployment. To the same degree to which private enterprise fails to absorb the pressure of disemployment, exactly to the same degree will the national government be compelled to provide work in one way or another. Neither slogans nor refresher courses in past history will lessen the insistence of the disemployed for jobs.

There is no doubt that the American people are still overwhelmingly in favor of private business meeting this responsibility. But there's no doubt in my mind that a large army of unemployed will turn its back on private business and insist on action by the national government if private enterprise doesn't come through.

But if jobs are the key to economic reconstruction after the war, then progressive and sound labor relations are the handle on the door. Labor has gained both in social legislation and economic experience. It is now a force far more organized than ever before. It is rapidly maturing although in some areas it is still far from maturity.

There is no chance that American labor will let itself be side-tracked either in the formulation of political programs or in post-war planning. The gains that labor has made during the war are not likely to be relinquished without a bitter struggle. But, and this is an extremely important fact to bear in mind, there need be no struggle between capital and labor in the American economy. If anything, the war has demonstrated most effectively that management and labor can get along to their mutual advantage. I am not unmindful of the irritations that can be placed at the door of labor. But neither am I unmindful of the irritations that can be traced to management. What's important is the constructive accomplishment of both management and labor working together in war production. This is the hook on which we should hang our hats when we enter the reconversion period and the post-war era and get down to the real job of doing as well in peace as we have done in war.

The fifth challenge will flow from the partial reconversion to civilian output. Present indications are that the peak in war production will be reached around March 1944, with output at a monthly rate of about \$8.5 billions. Following this peak, the rate will be cut down until at the end of 1944 our monthly volume of war production will be in the neighborhood of \$6.5 billions or even less. At the same time there will be a notable shift in the type of war goods produced. We already have sufficient supplies of light equipment, ammunition, tanks, trucks, and similar material to maintain our forces at battle strength. From now on the emphasis is going to be upon replacement and repair parts for this type of equipment.

However, we shall probably continue our ship-building program and even expand it with a view to the requirements of the Pacific war. For the same reasons, we shall make some shifts in our plane program in the direction of heavier long-range bombers and fighter planes.

It is very probable that war industries on the Pacific Coast will obtain not only a larger percentage share in the volume of war production than they now have but also a larger absolute amount of dollar orders.

However, it would be fallacious to conclude that the reduction in our war output will immediately and automatically release a corresponding quantity of critical materials for civilian production. Such a development appears extremely unlikely.

Instead, there will be a more than proportionate release of raw materials that go into the manufacturing

of military soft goods. But even these raw materials will not be released indiscriminately. Plans are rapidly maturing in Washington's official circles to initiate a system of "priorities in reverse" immediately after war production declines from its peak.

Under such a system, raw materials will be released for civilian production on the basis of two considerations. First, is the end product highly essential for civilian consumption? Second, and this is likely to be the more important criterion, how many man hours of work will be created by a given unit of the raw material to be released?

The sixth challenge to business management will arise in the field of foreign economic relations. Until Pearl Harbor our international economic philosophy was one of isolationism. The barricades of a protective tariff had been accepted for more than a century as the foundation of a sound American economy. At least they have been accepted in this light by our legislature and the average man in the street.

It is ironic and paradoxical, however, that Big Business, although doing extensive lip service to the doctrine of political and economic isolationism, has long been internationally minded. Big Business discovered the "One World" long before Wendell Willkie took his trip.

If you accept these premises, then the conclusion is inescapable. We shall have to make those adjustments in our economy that will enable foreign nations to find an outlet in our market for goods they are able to sell to us and with which they can pay for the purchases made from us. To accept such a program does not imply that we are willing to become a global philanthropist. It does not involve a philosophy of charity. Basically, it is nothing but a philosophy and a program of hard-boiled, realistic economic thinking. It is far more expensive for us to become a relief agency of unlimited duration than to turn quickly into a two-way trader. It is far less expensive to develop a two-way traffic in goods and services than to prepare for a one-way traffic of soldiers and ammunitions and a return trip of dead heroes.

American business management must also realize, and realize quickly, that political isolationism is inseparable from economic isolationism. The time is long past when the foreign policies of a national government had little effect on the economic life of the nations involved. World trade can only prosper in the twentieth century if supported by a foreign policy based on the principles of international cooperation.

Technics of Post-War Planning for an Individual Company

By WALLACE CLARK

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THE man in the street asks how it is possible to plan when no one knows what is going to happen or when. The answer is that industry has always had to make plans in advance without being sure of the future. It is the responsibility of the chief executive of a manufacturing company and his associates to use their cumulative experience and judgment to formulate policies and plans to meet whatever may happen. The only difference in the present situation is that there are more uncertainties than usual.

First is the financial uncertainty of the next two years. The chief executive cannot be sure that he will have enough resources to carry his company through the conversion period until receipts from peace production come in. Heavier taxes are draining his surplus earnings. Renegotiations and cancellations stare him in the face. If he could go directly from war to full peace production, he would not have to worry about money, but this is not possible. The longer the period of reconversion, the more capital will be required. The obvious course is to concentrate his energies on shortening this period, of course making sure that it will not interfere with the output of war material.

For his post-war planning this executive has some new and valuable assets which he did not have in '39. At that time engineers and technical men had not recovered from the long depression, when development and production were at a standstill. As the war drew closer, these men came into their own. One of the strongest assets for the post-war future is the renewed confidence and dynamic spirit of engineers, physicists and production executives.

Our prewar industries were far below standard because there had been little capital investment for eight or ten years. During the last few years billions of dollars have gone into new facilities and equipment, and as a result we have industrial plants that are the best in the world.

The need for increased production has brought many capable men and women into industry, and improved methods of training have made them into skilled workers and often revealed qualities of leader-

ship. Those who have gone into the armed services have received thorough training in the maintenance and operation of intricate equipment. They will come back into industry with much more to contribute.

Materiel and goods produced for war have been of higher quality than commercial products. This was imperative because equipment had to stand harder usage and longer continuous service with a minimum of upkeep. Many companies which formerly made products of average quality now are turning out precision instruments in large volume.

Manufacturing companies enter the post-war period with these new assets: better plants and machines; more skilled workers; engineers, technicians and production executives able and eager to use their full creative energies in peace as they have in war.

If among these assets there are no strikingly new technics of industrial management and planning, there are new areas in which they have been applied. The most significant of these is that of research and development. In the past that field was considered too intangible and inspirational to admit of scheduling. Under the great pressure for getting projects from research into production for war, some of our scientists realized that there is a point where inspiration leaves off and methodical development begins. They have made it possible for the planning expert to enter the laboratories and organize services to take care of the details which do not require the highly specialized abilities of the research engineer and then, by means of timing, to coordinate all the steps that follow his creative work. Equally significant is the wider area of over-all planning in which these technics have achieved so high a degree of coordination between our industries and the Allied Forces.

Within these newer areas there are important developments in planning technics. First, timing is now recognized as the thread which runs through all plans and schedules and ties them together. In the early months of this war, time objectives were not defined or accepted, but, as we moved on, their importance was realized more and more. Time objectives are now

generally accepted as the most effective means of getting plans into action.

Another important development is the greater flexibility of these technics. It has not been possible to wait for the completion of one phase of the work before planning the next. Development and improvement have had to overlap quantity production and, as a result, there have been constant changes. Engineers no longer hesitate to scrap their old schedules and replan from the beginning.

Using These Technics for Post-war Planning

To illustrate the use of this flexible time-planning for reconversion, the development, manufacture and marketing of a new mechanical-electrical product has been chosen as an example. This is a composite of recent experience.

The top executives have reached a decision to put this new product on the market. Obviously they have studied the patent situation, the probable competition, the method of marketing, expected volume, price range, estimated cost of production, capital investment required, availability of skilled labor, ability of the engineers to design a satisfactory product, and other factors. They have appropriated the funds required—at least up to some specific point—and have assigned responsibilities for developing, manufacturing and marketing the new product. They have set July 1, 1944 as the date for beginning quantity production.

The planning, from the beginning of development to the end of marketing, has been divided into:

Development
Pilot Lot
Reconversion
Quantity Production
Marketing

Development

Since it has been decided to make this product, it is apparent that the research has been done and development is under way. The executive in charge of engineering development now sits down with his key men and examines the status of the project. As they discuss each component or sub-assembly, his assistant writes on a chart a brief statement of how the development stands. The engineers decide what remains to be done, the best sequence, how the operations can overlap, and estimate roughly the time required for each. In scheduling the work for designers and draftsmen, time is reserved first for those components which

will take longest to procure. The assistant blocks off the period for each step, as shown in Figure 1.

It is understood that the estimates on which the specific dates rest reflect present judgment of future events and are therefore subject to error, but they provide definite aims. Occasionally an engineer protests that because of so many uncertainties it is impossible to figure the time needed for a specific step. However, he will agree that there is a minimum period which the operation must take and a maximum which is not likely to be exceeded. A more careful study of the interval between these two dates usually brings an estimate which is reasonably accurate.

When the engineering work of the various sub-assemblies has been charted, the executive looks at the over-all period covered by the estimates to see whether his work will be completed in time to put through the pilot lot and get into quantity production on the date set by the chief executives. If his finishing date is too late, he re-examines the various steps with the key engineers and they decide on the short cuts or additions to staff or facilities which will be necessary to meet the deadline.

The daily functioning of the drafting room is examined to see if better service can be given to designers and other key engineers, so that they can be relieved of all work which can be delegated and can concentrate on the part which they alone can do. The productive capacity of the drafting room is usually increased in this way and is further augmented by more careful assignment of work in accordance with the dates shown on the charts.

In the development there are usually so many changes under way that it is difficult for the various engineering sections to judge the comparative importance of the work ahead and the best sequence in which it should be done. To overcome this uncertainty a weekly Order-of-Work sheet is written out for each section of the drafting room, taking the information from charts which show the parts of the work that have fallen behind schedule. The steps which are farthest behind are entered at the top so that they will be done first.

If the project engineer is not able to complete the steps which appear on his Order-of-Work sheet, he discusses his difficulties with the chief engineer, and together they find a means of overcoming them. At the end of the week the project engineer enters his progress on the same sheet, stating briefly the reasons why he has not begun or finished those things which are delayed, and indicating when he will be able to do so.

This automatically brings to the attention of the executive whatever is not moving in accordance with plan. At the same time it gives the project engineer an opportunity to get quicker action on his proposals,

In order to emphasize the need for each department to time its work so as to mesh with other departments, a chart is drawn (Figure 2) showing the various operations according to the responsible parts of the organi-

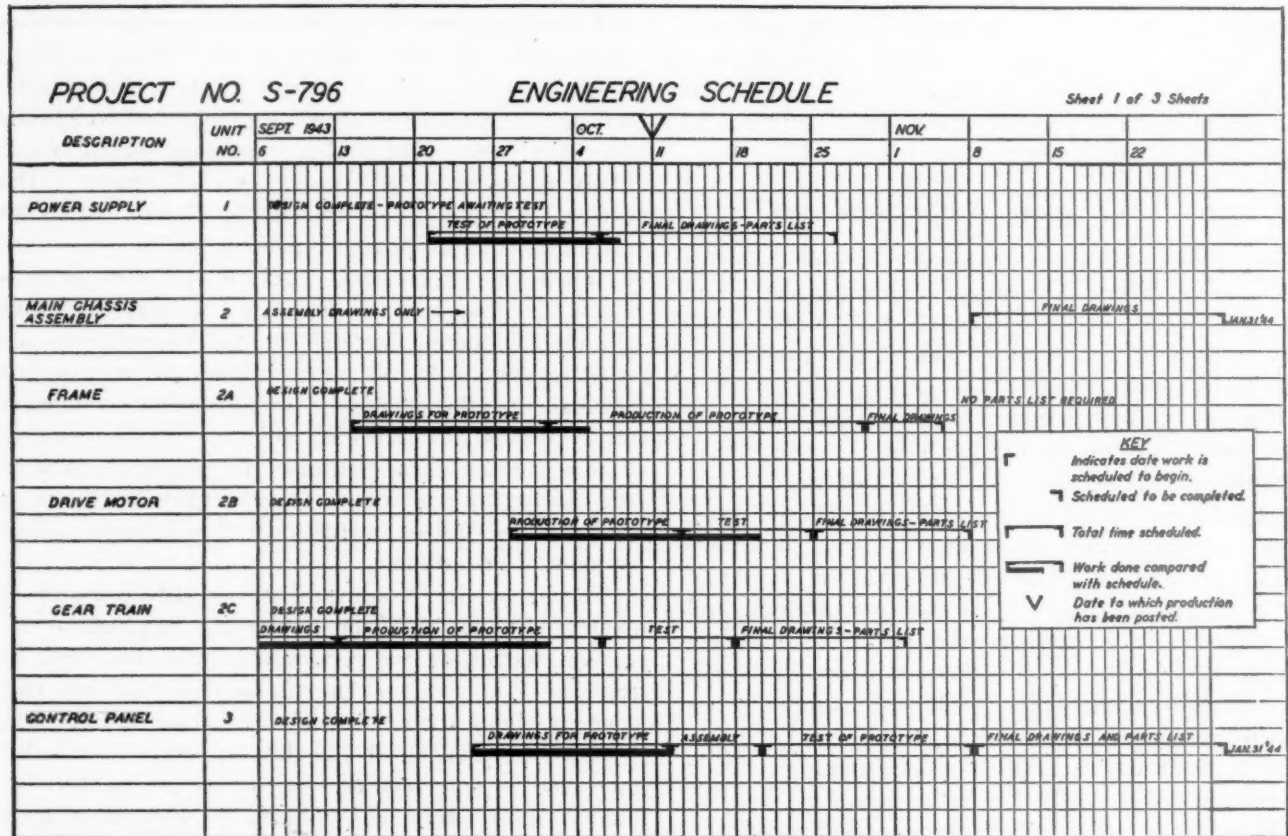


FIG. 1. Schedule for the engineering development of a new product.

and he feels more responsible for the successful carry-through of his ideas.

Pilot Lot

The period of development practically ends when the prototype is tested and the drawings and parts lists are revised and issued. Obviously changes will be made and a limited amount of development will continue up to the moment of final approval and freezing of the design. After development passes its peak, attention is centered on working out production methods, securing materials, parts production, subcontracting and the assembly of a small lot which will undergo thorough service tests. This is often called the Pilot Lot Period, although it includes materials, parts, et cetera, which will ultimately go into quantity production.

The schedules of the Engineering Department are summarized on the first four lines.

The Methods Department does not wait for a complete set of drawings, parts lists and bills of materials, but as soon as drawings of single parts or sub-assemblies are available, works out the machining and other operations and, in the form of Master Route Cards and shop drawings, passes this information on to the Planning Department.

When the data from the Engineering and Methods Departments come into the Shop Planning Office, the latter studies the information, looks at the load of work ahead of the company shops and decides whether the parts or sub-assemblies should be made inside the plant or subcontracted. Requests for purchase of materials or parts and for manufacture in the company shops are made up, each stating clearly when

deliveries are to begin, and weekly quantities needed and the date when the order is to be completed.

The Purchasing Department receives these purchase requests, looks over the available outside facilities and places its orders and contracts, in every

The chart shows when the Inspection Department must have ready its drawings, specifications and instructions as to tolerances, so that it can promptly inspect the first lots received from suppliers and return those which are substandard, with full instruc-

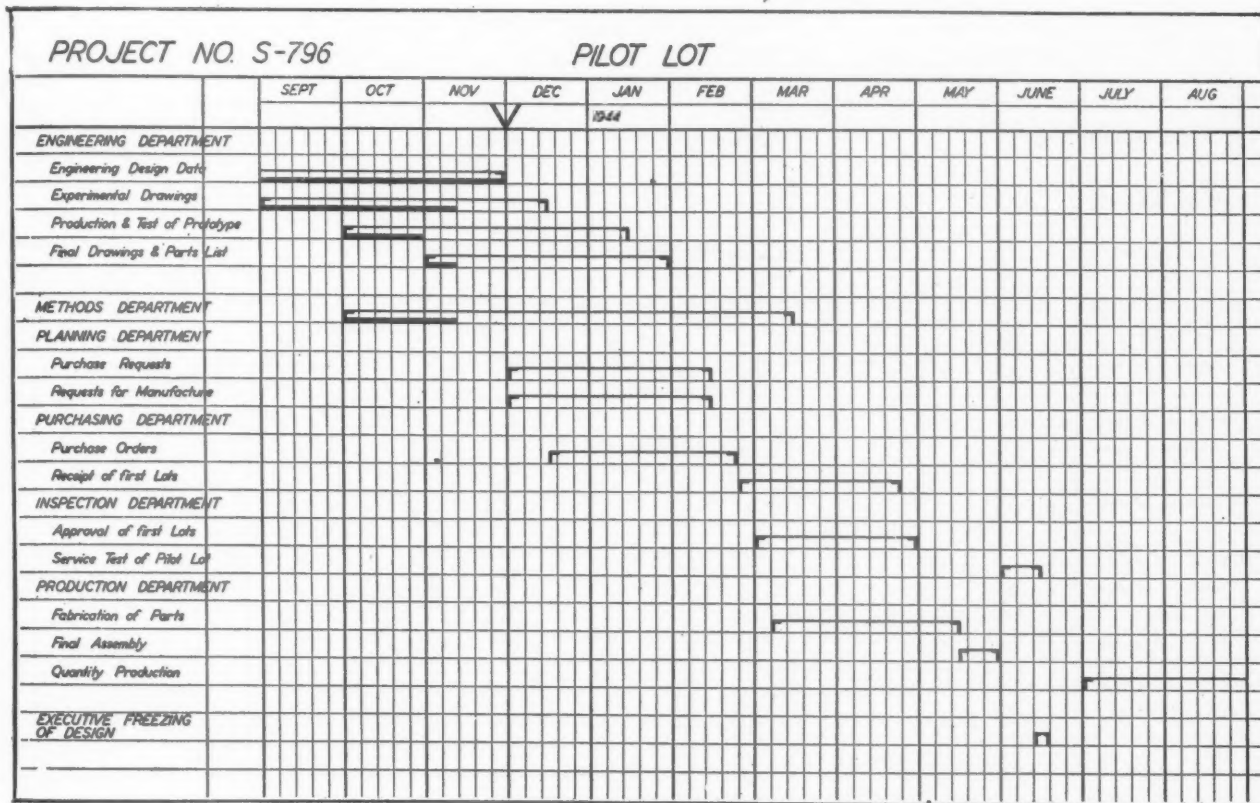


FIG. 2. Plan for pilot lot from engineering to quantity production.

case emphasizing the deliveries required. In those cases where the supplier cannot meet the desired dates, the buyers consult the Planning Office before accepting any proposals which will not meet schedules.

A line on the chart (Figure 2) blocks off the period required to secure the first lot of subcontracted components and assemblies, and the Purchasing Department uses planned and energetic expediting to get its suppliers to meet delivery promises. It is important for the schedules to show the relative urgency of the items being bought and the date on which each item is actually required. Then the buyers will not label every purchase order "Rush" and thus cancel out their net pressures on the supplier, but instead will be able to make reasonable demands on their vendors and to apply extra pressure with good effect in the minority of cases where it is necessary.

tions how to meet specifications. After the first lots have gone through, this department must be prepared to receive parts which are to go into final assembly.

The Production Department must watch the timing and be ready to work on the materials when delivered and fabricate the parts the Planning Department has requested. Final assembly cannot be begun until all parts have come into stores from the company shops, other suppliers and subcontractors. Two weeks is reserved on the assembly lines for putting through a pilot lot of one hundred. As they come off the lines they are gone over thoroughly by the Inspection Department and then sent to be service-tested. Time is allowed on the chart for adjustments to parts and components, as necessary. When the tests are completed on the pilot lot, the design is frozen by the chief executives and production begins.

Usually when such a chart is first completed, the over-all period is seen to be too long. A conference is called of those responsible and a concerted effort is made to shorten the time. This is accomplished largely

the various parts of the plant, problems have come up to the executives and they have formulated new policies or changed old ones, and have taken action necessary to clear the way for the movement of this

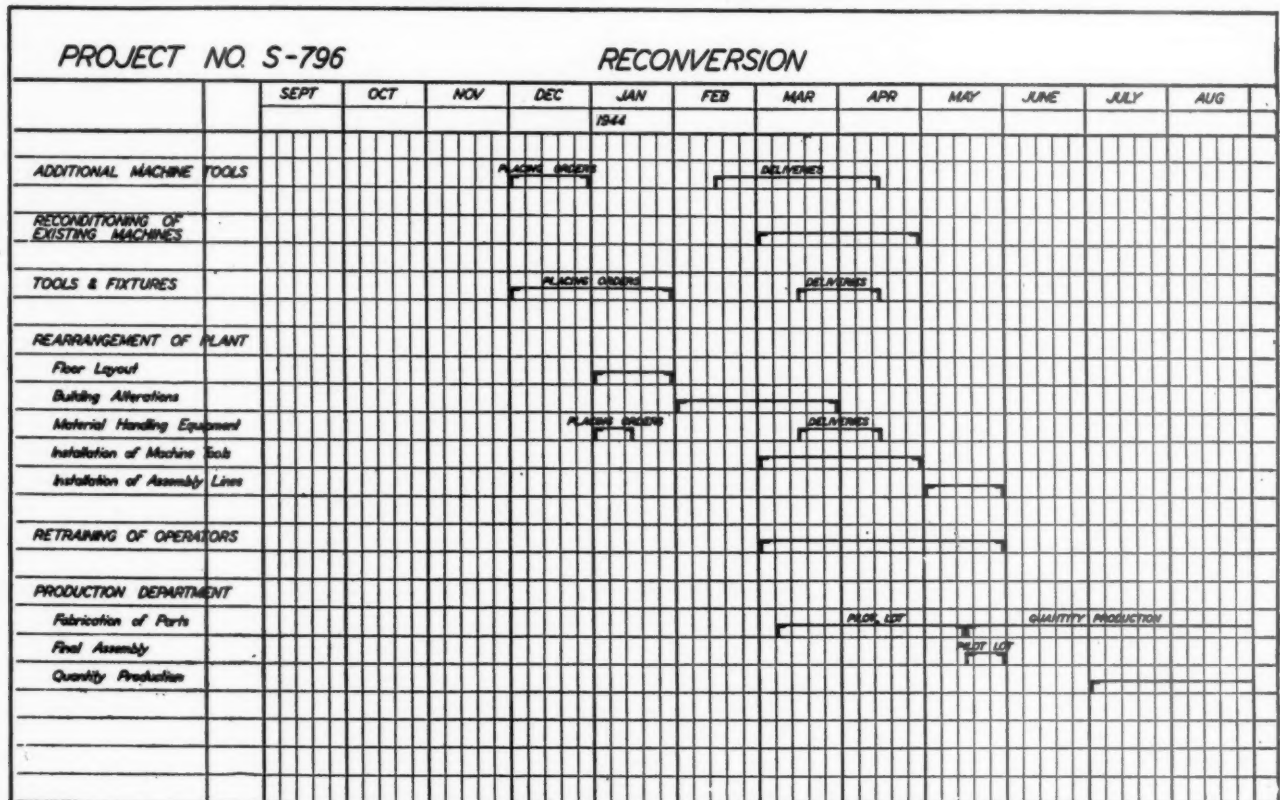


FIG. 3. Plan for reconversion of plant to meet schedule of pilot lot.

through the release of advance information from one department to another. For example, the Engineering Department agrees not to wait for the completion of each sub-assembly, but to issue Advance Material Lists which will enable the Purchasing Office and, in turn, the suppliers, to place orders for materials and tools. This first revision of the over-all schedule usually shortens it by months.

Obviously the chart shown in Figure 2 presents only a summarized schedule for the executives and it must be backed up with charts which fix responsibility for each detailed step. As progress is posted weekly against the schedule, those points where the time will have to be extended can be seen in advance. This keeps the original schedule and objective before the executive and at the same time, makes clear the adjustment and changes that have to be made as the project moves along.

Throughout the planning of this pilot lot through

project at the tempo they require.

Coincident with the period when the pilot lot is being put through, preparations must be made for the quantity manufacture of the new product. In Figure 3, which is synthetic but not hypothetical, a large war order is to be completed April 30 of next year and plans have been carefully worked out to taper off that production during March and April, releasing floor space, machines and operators for the new product.

The Manufacturing Department secures from the Sales Department a schedule showing the quantities they expect to ship each month for a year after quantity production begins. The Manufacturing Department then levels off this curve to secure a more even production program which will require a minimum number of machines and operators.

The Manufacturing Department submits to the chief executives the estimates of the Sales Department

and the proposed level of production. The Financial Department makes preliminary estimates of the capital investment and the working capital which will be required to carry out the program. The chief

the placing of orders for machine tools which may be new, bought from the surplus of other manufacturers or from the Government pool. The latest dates by which they must be delivered are given to the Pur-

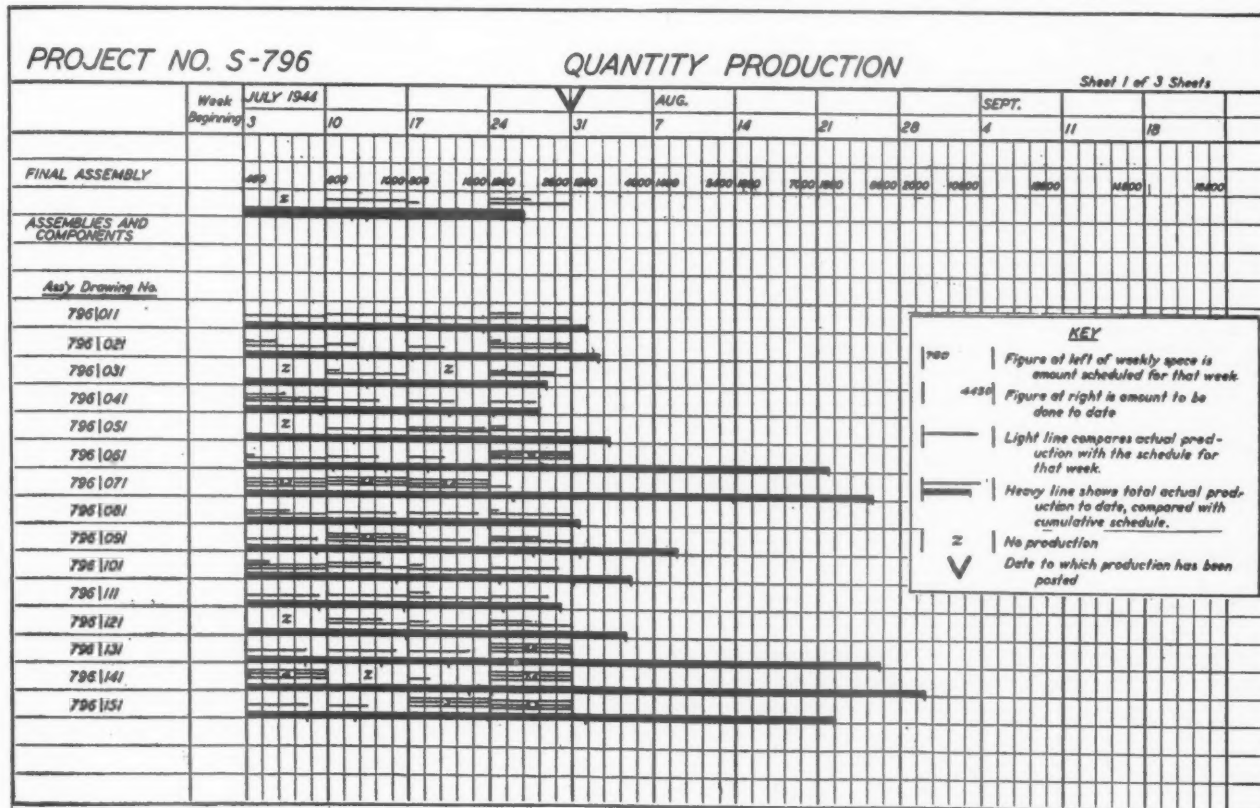


FIG. 4. Schedule for quantity production and supply of components.

executives make whatever alterations they consider necessary and give an approved plan to the Manufacturing and Sale Departments.

The drawings and parts lists from the Engineering Department and the master route cards and shop drawings from the Methods Department are received by the Manufacturing Office, which then has all the information needed to figure the hours of work for each type or size of machine tool and prepares a list of machines needed for the new product. Those which are being used in the plant on war orders are checked against this list and notations are made of the changes which must be made to fit the old machines for the new operations. The items which remain unchecked on the list must be purchased.

The manufacturing executive reserves on his chart (Figure 3) the time for the various steps of his plan to begin quantity production and build it up to meet the marketing programs. The first step he enters is

chasing Office, which is guided accordingly in placing its orders.

Time is next reserved for the placing of orders for tools and fixtures either on the company's tool room or on outside shops. Deliveries are required to meet the installation of new and rebuilt machines. At the same time, initial orders are placed for the cutters and other expendable tools to be used on the new product. A period is allowed for study of recent improvements in cutting metals before the orders are placed.

As soon as the machine tools are ordered the Manufacturing Office will prepare floor layouts for the new product and will make the necessary plans for alterations to buildings, the installation of material-handling equipment, of machine tools and, finally, the setting up of the assembly lines themselves.

Receipts of first lots of materials are timed to meet the schedule for new and overhauled machines.

A majority of the machine operators now in the plant must be retrained for the new product. Plans have been prepared to set up a Trade School and, as their operations on war orders run out, to shift the operators grow up by group to training and then to

get into production within two weeks after the chief executives have given final approval to the design, unless the changes are much more serious than he expects. He has prepared a chart of the flow of work through final assembly (Figure 4). Due to the thor-

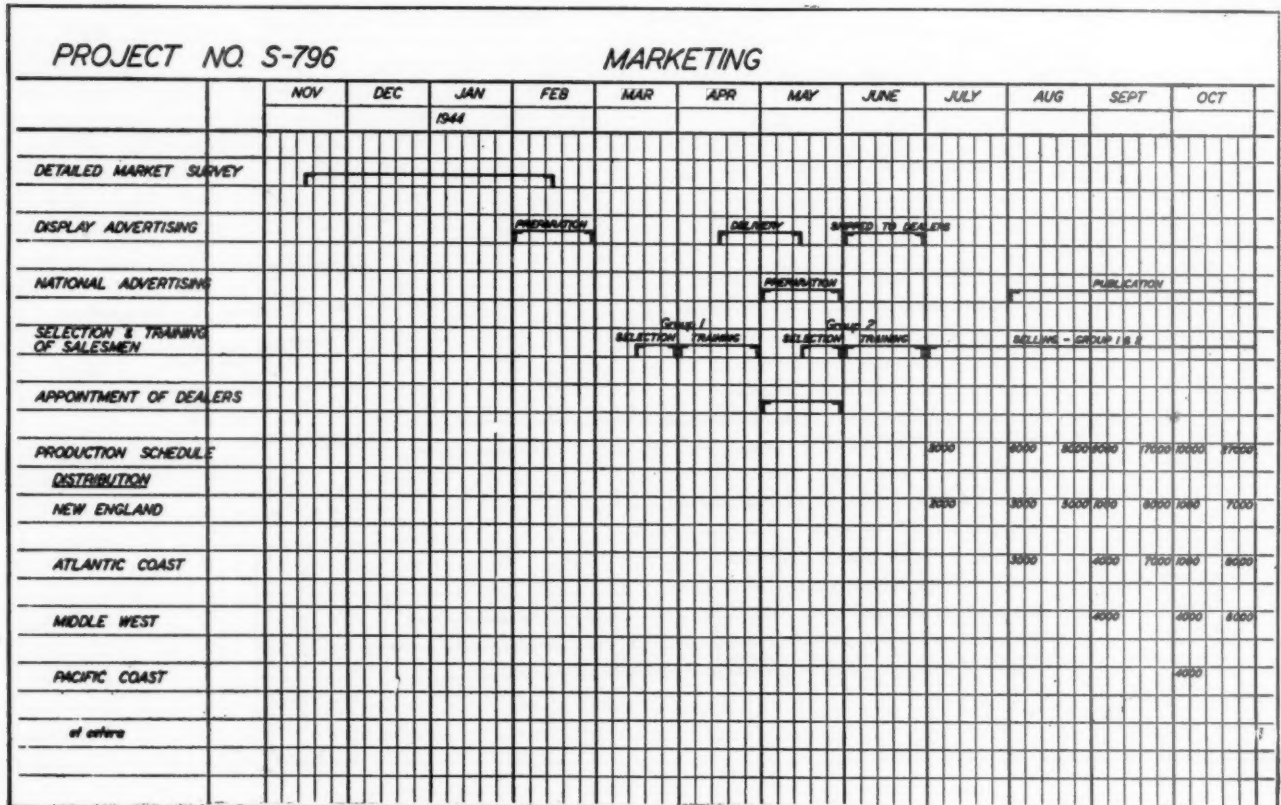


FIG. 5. Plan for marketing, coordinated with production.

new operations as the overhauled or new machines become available.

The chief executives realize that they may not be able to carry out this program on the exact dates set. The Government may not release the materials needed for peace production as early as March, or perhaps the War Department will insist on giving them another order to continue after the completion of the present order. In either case the plans will have to be changed, but with the various steps so clearly laid out on the summary chart and backed up with the detailed schedules, the program is flexible and can be rearranged to make the best of any unavoidable delay.

Quantity Production

The executive in charge of manufacture expects to

ough planning for the reconversion of the plant and the training of workers, this manufacturing head expects to increase production within about two months from 400 to 2000 per week. The heavy lines are drawn merely to show how the situation might stand at the end of the fourth week.

He feels confident that he can put the scheduled quantities through the final assembly, if he has in his stockrooms all the sub-assemblies, components and parts. Therefore he will chart the receipt of these items in stores, comparing the quantities with assembly schedules. From the progress lines he can see which components are holding production down, and which will be likely to do so when the present bottlenecks are broken. Subcontracts probably will be as hard to follow in July '44 as they are now, for there may be delays in receipt of materials, difficulties due

to shortage of manpower and other events to interfere with receipt of items which are to come from outside. There will also be overloads in his own parts shop which must be watched and prevented by good shop planning.

Marketing

Before the decision was made to produce and sell this product, the Sales Department had made a preliminary market study and had recommended to the chief executives a method of distribution, the price range and monthly sales to be aimed at for the first year. The engineers designed the product within that price range and the Manufacturing Department will order materials and make all their plans for the quantities agreed on.

The Sales Department has prepared its detailed plans for marketing the product and summarized them on a chart for the sales executive (Figure 5). A market survey, which is to be more thorough than the preliminary study, is now under way and is due to be completed by the middle of February. Dates are set for the various steps in the publicity program. It will be necessary to build up a new force of salesmen, because those who had sold the company's products before the war have been dispersed. One group of salesmen will be trained for a month in the spring and then sent out to select and appoint local dealers. A second group will be trained in June and sent out with the first group to take orders as soon as quantity production begins.

The hub of this chart, around which other things revolve, is the schedule of shipments promised by the Manufacturing Department to begin with 2000 in July and reach 10,000 in October. These shipping schedules are one week behind final assembly. The initial stocks for the warehouses in the various territories are charted, as well as replacement stocks after sales to consumers begin.

Financial Plan

From the time-programs worked out for the development, production and sale of the new product, a financial plan will be drawn up which will show each month the outgo for capital equipment, materials, labor and overhead, and against that a schedule of receipts from sales. From this, the financial executives will know how much must be put into this project month by month, and when money will begin to come back. This plan will also show the working

capital which will be needed during the first year of production to build up stocks ready for peak sales.

Personnel and Training

Planned to tie in with the reconversion program are the training of operators and foremen for the new production; reinstatement of personnel from the Armed Services, with their upgrading and retraining; improvement to plant for better working conditions; new housing and improved transportation.

Timing

In the design, production and sale of a new product the timing is influenced by a number of factors, such as:

- Complexity of product, difficulty of design, number of components and parts;

- Periods required for delivery of materials, for fabrication of prototypes and pilot lots;

- Extent of retooling.

In these respects the product illustrated may be classed as intermediate. For this type of new product a full year of intensive work is required to change over from war to peace production. Actual reconversion of the plant is expected to take sixty days (March and April), but it is preceded by six months of hard work in Engineering, Methods, Planning and Purchasing. From the date the plant conversion is completed, five months will elapse before enough money will come back from customers to cover the factory payroll and current expenses. Thus it will be seen that if reconversion is allowed to drag through too long a period, finances may not be sufficient to carry over.

Since timing has become so vital, the industrial executive who is looking ahead for his company and the people in it, must have some means of timing future action. It may be by charts such as these, or it may not. What is more important is that in his post-war planning he shall recognize and make use of the new intangible assets that are behind the lines and figures.

If planning technics have become more flexible, so have the minds of men who use them. If technics of timing have been sharpened, men's minds will make quicker decisions. If these technics have entered the highly specialized area of research and development and the wider field of over-all planning, it means that such men no longer feel regimented or restricted by orderly planning.

The executive who has vision to make use of these intangibles will be outstanding in post-war planning.

Manpower Employment after the War

By CARL GRAY

President, Grenby Manufacturing Company, Plainville, Connecticut

THE most important thing that citizens can do is to establish an orderly process for adjusting men from our armed services, and war workers back to civilian life, giving them the benefit of intelligent guidance, trained placement and thoughtful organization—instead of a helter-skelter flooding of our civilian economy at a time when we shall all be busy converting business to peacetime production. I believe I am justified in advancing the modest plan I have in mind now—for operation today—because men are returning every day from the battlefield. 600,000 men have been discharged since Pearl Harbor. If we start the machinery now for returning soldiers, it will be well under way when demobilization accelerates.

Let us remember that we will have a ten million man army plus thousands of war workers, many of whom believe they are skilled because of high wages which they now receive. The latter group too will need help to convert to peacetime occupations, or they will create another serious problem.

We cannot, with safety to our form of government, tell these men to sell apples; nor can we insult them with "made work," under the name of WPA or any other label. I know that business, through research, new products, etc., will be required to provide jobs but "Creating jobs for all" is not the entire answer. People must be qualified, mentally, physically and in ability to take those jobs or we will have coddling and personal initiative will die out. We must not promote wards of the State.

Normally, the production of useful goods involves three basic things—*materials*, *machinery* and *men*. This is the trinity on which our whole economy is based. You will find people who are deeply concerned about the quality of materials. You will find them mightily concerned about their machines and the amount of production—but somehow, their interest too often stops at this point. But machinery and materials aren't worth a damn, unless there are men—men who have the "know how." To my mind, this last is the most important of all.

An idle machine is an economic loss to be deplored; spoiled material is an economic loss, to be deplored also. But an idle man, or a man spoiled by doing the

wrong job, or not being able to do the kind of job which he is innately capable of doing, is more than an economic loss. It involves values that go far beyond those which can be measured in dollars and cents.

As a manufacturer, I believe that manufacturers, business men, employers and all citizens have a duty that goes beyond the mere operations of their factories, businesses or towns. I believe we have also duties as citizens to participate actively in civic affairs. These matters should not be left wholly in the hands of professional politicians. If industrialists and all citizens are to make their declaration of independence from being bossed by bureaucracy, then they must do something more than declaim against it.

Government is not a producer of wealth, even if it does have charge of printing money. It consumes wealth.

Real wealth is produced only when a man, a machine and material get together; when the man knows what he is doing in shaping that material into something useful. That applies, not only to manufacturing but to all business, commerce and agriculture as well.

I do not believe in a philosophy of scarcity. I believe in the philosophy of abundance. My only concern is in producing real wealth for the country—not money, but wealth. I want the man, properly trained to meet the machine and the material to produce useful things for us, and for all the peoples of the world, who can use them. For wealth comes only when men are equipped with the "know how" and have a job to do. Now, I hope following this war, there will be an economy of abundance, a philosophy that the world has never had enough of anything, including little pigs, that our wealth as a nation is not the gold stuck away uselessly at Fort Knox, but the wealth of usable things that the hands of man can make, that the hands of man can raise, that the hands of man can mine.

Markets in the world are being opened up these days which stagger the imagination. American boys in our armed forces are now citizens of the world, and you can be certain there are among them those who are keen enough to see the lack of things, usable things, everywhere, which we take for granted at

home. Here are some of your foreign salesmen of the future.

Once we have jumped the original hurdle of transition from war to peace, there is not going to be any lacking of markets. That is one of the reasons I stress careful screening and training, for returning soldiers, so they can become an integrated part of our civilian economy. There is no more effective blocking of isms, crackpot ideas and bonus marches on Washington, than by giving these men guidance and training in being useful and then place them in useful jobs. Let us not forget that occupational training in industry, agriculture and commerce stimulates personal initiative and resourcefulness from which flow new enterprises and the expansion of old ones.

What I suggest is a plan for absorbing these men back into productive society. This plan is based on practical experience.

In 1939 the Governor of Connecticut asked me to make a study of the employment problem of the man over forty. I found in most cases the man over forty came from the group which, after the last war, never had an opportunity to learn a trade, profession or occupation. He had nothing to offer that then had present value. The fundamental prejudice was not entirely against men over forty, but against men over forty who had no useful training. We set up in Connecticut job-training schools for all ages from eighteen to sixty on all types of jobs.

Local committees of interested citizens working in harmony with existing local agencies stimulated community thought, guidance and action making the program possible. Candidates, who took these courses, came from relief jobs and WPA and many walks of life. Many told us it was the first time in their lives a personal interest had been taken in helping them to find themselves. Trainees went to these schools on their own time—without pay—many from 11:00 at night to 7:00 in the morning just to learn a little "know how." In Connecticut over 45,000 went through this training into jobs and since that time many more.

Because the plan originated in local communities with volunteers from industry and various local agencies, do you know how much that cost the State of Connecticut for eighteen months' work—\$701.47.

We can prepare the way for a large percentage of returning soldiers, and I believe that is our number one job. This is a job that transcends politics and can best be accomplished by community thought, community guidance and community action.

Going into the Army now are young men, who are fresh from school; others have been in business or industry for too short a period to have developed a skill. Normally, these next two or three years would be the period of discovery, orientations, trial and error,—and experience.

We are snatching these trial years from most of these youngsters. You, no doubt, have sons among them. When they return to civil life, they will be mature—indeed with an accelerated maturity. They will have wisdom, yet, beyond their theoretical school training, they will be unversed in the ways of either business, industry or agriculture. I propose that we should and can do something about it.

If a country can take a man from a job or from school, submit him to extensive medical, physical, neurological, psychological, psychiatric and vocational interviews, train him at great expense over a period of many months, equip him with the best to muster him into military service—then that same country must have the imagination and the courage and the willingness to bear great expense to do the same thing in mustering him back to civil life. Government trains and pays men to learn to kill. How much better to teach them to learn to live and produce for the general welfare of all.

It is possible to forecast trends in business. It is possible to forecast man-power needs, even in specific categories. Not only is it possible, but it is being done every day now.

Why should the adjustment, the training of new entrees into the business, agricultural and commercial world in peace be left to chance, when in war it can be done so specifically? Men are being trained every day for the many specialized needs of the armed services. By reversing the process by means of a well organized Occupational Service, we can make these things come true in civil life; we can say with a degree of certitude that a great many cooks, truck drivers, dietitians, toolmakers, farmers, school teachers, nurses, lawyers, physicians, clerks, or machine operators are going to be needed in a certain area. Then we must proceed to train our demobilized troops, who are not definitely and certainly tied in with a job or a business.

Many through former connections, family or friends will slide back noiselessly into civilian life, but our attention is focussed on those who would otherwise be left adrift.

They must get as thorough a going-over as they had when they went into the Army. Their vocational

interview, aptitude tests and counselling must be well done, by trained employment interviewers and experts who know their jobs. They must consult with the soldier, talk to him about his plans and help steer him into the right kind of training. Just creating jobs and then forgetting about them is not the answer. I am told that a high percentage of the men returning at the present time are mental cases. Some are not easily recognized. Just think what an error it would be just to create some job in industry for these men. Such a move might ruin them for life, whereas if placed carefully would mean the making of a happy and sound citizen.

The man with an I. Q. of 155 must be discouraged from seeking retreat into a menial job, and the I. Q. of 75 must be dissuaded from trying, for example, to study medicine or the professions.

Impossible you say? It is being done. The weeding process is going on in every Army reception center of the country. All we need to do is reverse the process from ingress to egress. Going out of the Army should be as meticulous a process as going in.

My plan of operation in broad outline is this: When the soldier is demobilized, his record in the Army will be forwarded to the local employment office. Here the soldier will register, be classified and then one of two things will happen. If he has his own business or job waiting for him, and presents no occupational problem, he will be immediately referred to the community to work. If, as will be true in numerous instances, there is no job awaiting him, the registrant will then be referred to a section on Occupational Counselling.

Beginning at this screening point, individualization of study, and the application of techniques and skills to the individual problem begins. It is, of course, fundamental to the plan, that this Occupational Counselling be no cursory affair. It must be thorough, painstaking and just as time-consuming as the personal problem demands. This is a program for trained technicians and professional people.

As a result of the facts at hand, through personal interview, Army records, tests, etc., the registrant then follows one of two general channels. Either he enters the Vestibule School for a short training course or he embarks on an orientation course, or both.

In other instances, the registrant, presenting facts which indicate his problem as basically educational, will be directed into either secondary or higher educational institutions, or will be admitted to apprentice training.

In the Vestibule School, he will have had an opportunity to "try out" any line which he and the guidance counsellors have selected. This acts as a check on the guidance counsellor's judgment, as well as that of the individual. If it is decided that the candidate wishes to continue in the occupation and is so approved by his instructors, he is then sent to a special school for intensive specialized training. After graduation from the special school, which may take several months, a year or two, depending on the type of vocation, he is then routed back to the employment service, where he is recommended for a job.

Instead of creating a new agency or agencies to carry out this plan, it has been considered to utilize existing agencies of government such as U. S. Employment, Education, Veterans, Labor, Manufacturers, and others. Because the Plan is national in scope, involving problems dealt with normally by diverse national agencies such as the Armed Services, the U. S. Office of Education, Labor organizations, veterans' organizations, as well as industrial and commercial organizations, Federal aid and Federal coordination is necessary. At the same time, it is felt that the prime initiative and control of operating machinery should be vested in the states and local communities.

It is obvious that the method of origination will determine in great measure the method of administration. If the states, the local communities, and private citizens, such as yourselves holding key jobs, sit idly by now and do nothing toward formulating and prosecuting into effective action a workable plan, then you may be sure the states will have little or no say about the manner in which post-war re-employment and training are to be handled.

Occupational adjustment may take days or weeks. There may be little or no real problem, or it may be nearly insoluble. It may involve formal training or the mastery of duties following employment. It may be essentially a psychiatrist's problem, or principally that of an employment specialist, who knows the nature and requirements of jobs and where openings exist.

Occupational counselling and the Vestibule Centers are the nerve centers of this Plan. Vestibule centers for orientation and preliminary training should be organized on the basis of all available economic and occupational information that will have been gathered by competent prognosticating agencies. Full recognition must be given to the probable number of employees to

be required in the broader classification of occupations. This information should be given to the groups to be processed.

Competent professional opinion indicates that one great factor in the occupational maladjustment of American youth has been the lack of occupational information that has been available. In eastern urban centers, it is not unusual to find that over eighty per cent of secondary school pupils are preparing for careers involving only ten per cent of the available occupations. If this situation prevails in public schools where already some attempt at guidance is being made, how much more necessary it must be that information be put at the disposal of older people, who have considerably less time to plan their careers.

For this reason, the Vestibule Center should include, not only opportunity for wide exploration, but also definite information concerning the occupational opportunities of the world, the nation, the region and the community.

Through this agency should be sent all those not fully adjusted occupationally. It is here that the program, begun through the Occupational Counsellor should be further intensified. It is axiomatic that this activity can be successful only to the degree that the participation is voluntary and cooperative. It is not regimentation.

Another element of the Vestibule Center would be that section which would enable those whose education and training had been interrupted by induction to review their work in an intensive way before proceeding to further study.

Apprenticeship training in all fields would play an important role in my Plan. When we consider that the high mark of indentured apprentices for industry in this country was only 165,000, while in contrast Germany, with a much smaller population, had more than 800,000 apprentices at the outset of this war, it is evident that this type of training has been neglected.

It has been neglected because, through some kind of fallacious reasoning, "white collar" training has been considered socially more acceptable. In the past, the creed of the educator has been that vocational training in secondary schools was the ugly duckling of education and should be reserved for boys and girls, who were mentally incapable of continuing their education in High School. Thus, to the classicist, the place of the public trade school and apprentice training in our educational system, were in the same category with those special schools which are built to care for subnormal or mentally deficient students. Educators must revise

their thinking. Much of the blame is on the parents and citizens in the community for not giving education the proper attention it deserves. There must be a return to the former pride in craftsmanship and a resurgence of respect for the craftsman. When I speak of vocational training, I do not mean in just the shop trades, but in all fields as well.

Educators must revise their concept of what education should be. The entire controversy of recent times, centering on the choice of education for life, for citizenship, or for earning a living is a phony. Education should aim at all three together and the extent to which they are separated is itself a measure of the confused mind of the educational fraternity.

I can, at best, touch only the high spots. I am not trying to sell you my Plan, I merely want to stimulate your thinking, as citizens interested in your own community, because I think your attitude toward these problems, and the active role you play will be important in the days to come. Statesmen may burn the midnight oil over blueprints for a new world, but the post-war planning of plain every-day men and women is concerned with steady work and regular pay checks. Ask any man in the Armed Forces what he wants out of the peace, and "A job and my girl" is the instant answer.

Here are eleven million men, a cross section of the nation. A large proportion of them are under 25, with their careers and life work still in the making. If their talents and skills are properly developed, and allowed to unfold in this post-war period, then we shall indeed have a finer and better country. If we are inert, inept, unaware of this great opportunity and thereby permit these youngsters, some of them with the most important years of their life snatched from them—some of them bearing memories of untellable experiences—to return to civil life, seeking to satisfy their need with a dole or a bonus, then we shall be sowing the wind, and shall reap the whirlwind.

Starting the wheels of soundly organized plan in operation should be done now, and not wait until peace is a prosaic, hackneyed fact. This needs to be done in advance for the same reason that it is important to seed your lawn with a good grade of grass seed before the weeds get strong. Unless through a combination of government, labor, agriculturalists, industrialists and all people, who are now contributing to the war effort, there is a definite plan in operation to greet the American soldier, he will have good reason for turning with anger against all.

(Please turn to page 45)

Three Levels of Industrial Planning¹

By DR. HARLOW S. PERSON

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CONVERSION of national industry from a rigid specialization forced by war to a stable but flexible diversification required to serve a peacetime culture can be achieved only by planning, although the technical quality of that planning may not meet the expectations of those as skilled in the technique as is this audience. Conversion is both a public and a private problem. Those responsible for public affairs have not yet learned how to harmonize the techniques of planning and of democracy, and even in private industry comprehensive planning is exceptional. Nevertheless, three levels of planning are indicated because of sheer necessity: first, planning by government of the national policy and strategic influences that will govern conversion, and of detailed methods by which the government disengages itself from its distorted penetration into economic activity; second, planning by the general administrations of private enterprise in respect of the policies and programs of their respective business in the post-war environment; and, third, planning of operations by the staffs of these private businesses in terms of available materials and facilities and of the prospective market.

At each of these levels planning consists of two major elements. One is the process of discovering the relevant facts in the light of which to determine the necessary lines of action. The other is the process of making the indicated dispositions. Making the dispositions is relatively the easier process. Discovering the relevant facts is the crux of the problem of planning, especially the problem of planning conversion.

Planning as a technique starts with definition of objective, proceeds by analysis to formulate ways and means of its achievement, and then seeks to substitute in the management situation knowns for unknowns; constants for variables. It endeavors to lay out a series of unit acts contributory to achievement that in combination offer a maximum probability of success. With this essential purpose of planning in mind as we consider the three levels of planning which have been noted, we are appalled

by the multitude of unknowns presented at every level. Operations planning is dependent on many decisions that must be made on the level of general administrative planning. General administrative planning is dependent on many decisions that must be made on the level of government planning. And on the latter level even the objective is as yet indefinite, because it depends on the play of forces of public opinion.

Operations planning of the individual plant consists of two major parts. One is the planning of a sales program; the other is the planning of production to fulfill the sales program. Production planning is relatively easy. Given a well-conceived sales program and its inherent quotas, the proportioning of plant, equipment, necessary materials, and required labor skills is not too difficult, although during the period of conversion the assembling of equipment, materials, and the particular labor skills will present some problems. This must be taken into consideration in the sales planning. However, given a going concern, sales planning is less dependent on production conditions than production planning is on the sales schedule.

In the individual plant sales planning and general administrative planning are closely interwoven. The sales schedule must of course reflect general administrative decisions concerning the economy of the industry, but the economy of the industry must be indicated largely by the findings of market analysis. And both the characteristics of the market and the economy of the industry will be profoundly influenced by government's planning and execution of conversion.

In this mass of unknowns and of variables several things appear to stand out as highly probable and to that degree offer a base of reference by which to guide tentative planning.

1. Conversion from war conditions to peace conditions is likely to be gradual. After the European phase of the war is concluded there will remain presumably the Pacific phase. Although reduction of the armies in Europe will be begun, considerable manpower will have to be retained there for policing and rehabilitation. In respect of the national plant allocated to war, the greater proportion is now and will continue to be utilized for the production of materials required by the

¹ Although this paper was prepared and given as part of the discussion, it was prepared in advance and took, in such an interesting way, the form of an independent article that it was deemed wise to include it as such.

naval and air arms on which has fallen the burden of Pacific operations. It appears therefore reasonable to assume gradual conversion.

2. Any degree of conversion will ease the situation in respect of availability to private enterprise of manpower and materials, although there may be qualitative factors of which we do not yet know the nature. Any considerable reduction of man-hour rates because of immediate widespread unemployment should not be assumed, notwithstanding the prospect of eventual extensive labor shifts. There is being prepared for this war's end a shelf of public works ready to take up the slack as signs of abnormal unemployment appear. It does not appear rational to expect an all-out *laissez-faire* conversion. Activities such as those of WPB, WMC and OPA are likely to be continued for a considerable period. They may guide the flow of manpower and of materials into certain industries, such as those producing durable consumer goods, of which rapid restoration may be decided to be in the public interest.

3. There is a huge volume of unsatisfied demand for all kinds of consumer goods and there is being accumulated a huge reserve of purchasing power. In addition to current income available during the period of conversion consumers will be able to draw on accumulated savings of something like a hundred billion dollars, of which a large part can rapidly become fluid and have for a time tremendous influence on the market. There are dangers as well as advantages in this. Some inflation appears inevitable, but the real danger is runaway inflation. I do not believe there is yet the basis for runaway inflation, and the announced policy and plans of the Executive Department of the Government on the whole indicate serious efforts to ward off the danger. However, the atmosphere of the Congress is in that respect ominous. The Congress appears to have lost its sense of responsibility—at least its perspicacity—on behalf of the general welfare in what appears to be a bidding for the votes of self-interest pressure groups.

On the whole it appears that the prospect for business generally during the period immediately associated with conversion is favorable. Yet for certain types of business particular circumstances may not be so favorable.

1. The liquidation of government's penetration into industry will affect some industries more than others. The government is owner of a substantial segment of the national plant—buildings, machines and tools—and of a surplus of materials and fabricated

products. If these are disposed of gradually according to a predetermined plan designed to control the effect on industry, the businesses concerned will face conditions most favorable under the circumstances; if they are sold at salvage prices to the large concerns now generally operating them, then many enterprises, the smaller ones especially, will face a very disconcerting set of conditions; if they should be sold at salvage prices to small enterprises, then the larger concerns will face a disconcerting set of conditions. It is my recollection that for several years after World War I, large enterprises such as those of the brass industry were in the red in so far as their business in spun and stamped items was concerned because of the competition of innumerable small concerns with low overheads to which surplus equipment had been sold, not so much by the government as by the large concerns themselves, at salvage prices. If surplus materials such as those readily convertible to consumer use are dumped on the market, many establishments will suffer distress. Altogether, the problem of stable conversion calls for gradual and calculated withdrawal from industry by the Government.

2. The machine-tool industry will face a period of difficulty peculiar to it. The conversion from peace to war called for intensive production of machine tools. While many of these machines are highly specialized and may not gear into peacetime industry, a large proportion of them will continue to be usable. This means that the machine-tool industry will have made available in advance, say, a decade of normal production. We must not forget that heretofore decline in the machine-tool and other producer-goods industries has been a factor that has stimulated downward spirals of depression. Perhaps wise planning on the part of government can help resolve the problem by directing our surplus of machine tools into channels of export, in accordance with a policy of aid in rehabilitation of industries in other countries destroyed by war, and of a general policy of aid in development of an expanding world economy, including feasible industrialization of underdeveloped countries.

3. Some industries will be affected by the presence of new materials like plastics and new devices such as in the field of electronics, because of wartime experiments and discoveries under government auspices and stimulus. However, it is probable that the influence of these generally is more likely to be felt later rather than immediately attending conversion. Whether they will be factors extremely disconcerting to certain industries will depend a great deal on the

reservations already made by the government in connection with government auspices and assistance, and on government plans in respect of the disposition of the government's interest in them.

In short, a great deal will depend on planning by government and government will be forced to do a great deal more planning than most people appear to realize. A wish, generated by nostalgia for an earlier economy, appears to be father to the thought that conversion may take the form of fairly immediate and complete return to the open way and *laissez-faire*. With such an assumption, no wonder that many businessmen are appalled by the prospect of having to pilot their business through the confusion that would result. However, the picture I see of the conversion period is, unless the Congress in an election year goes completely amuck, one of gradual, ordered change with high regard for the lessons learned from the blunders of transition out of World War I.

These influences of government will be stabilizing and will offer some of the constants around which to crystallize planning by private enterprise. Planning by government will be the sea anchor that will enable business to ride more safely the sea of opportunity offered by dammed up demands and widely distributed purchasing power. And with SEC on sentry duty and alert, some of the most powerful forces that led to inflation and the debacle of 1929 may be avoided.

The real problem of planning lies deeper than anything we have discussed and beyond the immediate

period of conversion. It will manifest itself forcibly five or eight or ten years from now. That is the problem of planning the merger of conversion into long-run stability of the economy. The people of the United States have learned from the present war effort that in time of war we are able not only speedily to shift production but speedily and enormously to expand the economy; that an economy can be so directed as to achieve a national income of one hundred and fifty billion dollars. This is a new and impressive experience.

Furthermore, we shall have emerged from the war with a national debt premised on maintenance of such a national income. We shall have realized that the United States has become an integral part of a world economy in which no other nation of power and consequence in international competition will return to *laissez-faire*. These considerations indicate that indeed there lies ahead an extraordinary problem of planning; the planning perhaps of a third integration of collectivist elements into our capitalistic economy. The first notable increment of collectivism was presented by the development of great corporations and their interrelations. The second was presented by the compensating development of labor unions and of regulatory legislation. The third is being forced by circumstances arising out of a global total war that leaves no alternative to definite, continuous adjustments of the economy through national planning.

We should look on the problem of planning for conversion as only a first phase of that larger problem.

How Labor Can Contribute to Manpower Utilization

(Continued from page 16)

ment. But for this war effort, we have invested 23 billion dollars in new plants and equipment that is Government-owned but privately operated. That is sufficient, plus the peacetime plant and equipment, to provide full employment for all the people. It will provide a higher standard of living. Labor is of the opinion that an economy that can produce gun carriages in the miraculous way they produced them for this war, can certainly produce baby carriages in times

of peace. It can provide employment in order that the men can marry a wife and have the wife push the baby carriage and perhaps four well-fed children to fill it—not necessarily all at once.

We could have a type of life that will present a model to the rest of the people throughout the world. That is going to need the best in all. If we fail in that effort, all your technics of management, your scientific approach, will be of no avail.

Management Problems in Revising War Contracts

By ARUNDEL COTTER

Tax Editor, Wall Street Journal

MANY companies, perhaps the vast majority of those producing for the war, have made profits from orders which most of us will agree are unreasonably large. That this has happened contains no criticism of American industry. These superabundant profits arose, at any rate in the vast majority of cases, not from any desire or intention to stick Uncle Sam in his need but from the ingenuity of American industry to cut costs with experience in any given operation, and to cut them more than could possibly have been estimated in drawing up contract prices for products you had never made before.

In the ordinary course of business good judgment as well as the forces of competition makes it advisable if not compulsory to hand on a substantial part of the reduced costs to customers. Many concerns have made reductions which were entirely voluntary, have in a sense renegotiated their own contracts. Incidentally, this by itself shows that profits have been unreasonable. But many have not; and the only way to reach these is under the compulsion of the renegotiation law.

Although agreeing with the principle of renegotiation I feel that the law needs amendment in many respects. Some of these are already in process of incorporation. But what is probably the most important one, that is in respect to post-war reserves, is not.

If I now seem to be mixing up renegotiation and taxes, let me say that this is deliberate. On the subject of reserves they constitute a single issue. What reserves are properly allowable as a business cost in calculating taxes should be equally allowable in renegotiation, and vice versa.

I do not favor the allowance as a business cost of post-war reserves in so far as they are only vague, contingent reserves for something that may or may not happen. Nor am I at all convinced by the arguments of those who ask Congress to free from taxation, and renegotiation, ten, fifteen, twenty or any given percentage of total income for post-war contingencies. Some companies do not need this, or should not; others may need more.

At the same time corporations should be allowed as business costs, deductible from income in tax returns and in renegotiation, reserves to cover what

are really present costs of doing war business, accrued costs which will not fall due until after the war. I think common equity entitles them to this, and the law should.

I wonder how many of you have read the recent testimony of Mr. Randolph E. Paul, General Counsel for the Treasury, before the Ways and Means Committee of the House of Representatives? Mr. Paul discussed and defined various kinds of reserves, and so far as his definitions go I consider this the best thing on the subject I have read. He describes as "valuation reserves" such things as reconversion costs, dismissal pay, certain inventory losses, etc., and characterizes these as definitely costs of doing business today, although not immediately payable.

One of the reasons that business has not got a better deal on the subject of post-war reserves is the fault of business itself. The majority of corporations have set up reserves under the name of "post-war reserves" or "contingency reserves," or some such title that leaves the impression that they are for contingencies that may or may not arise after the war. If that is all they are I hardly blame our legislators for refusing to consider them more sympathetically. If they are really current costs, deferred, then for goodness sake, estimate them as nearly as you can and call them what they are. I suggest that they be shown in your balance sheets and income accounts as "deferred war costs," but many will be able to think of a better term.

I liked Mr. Paul's presentation of what are properly war costs, but I find it impossible to understand his conclusions, that, in spite of the fact that these costs are really current they should not be allowed as costs either in taxing or renegotiating current profits. He prefers what he calls relief as provided by the carry-back provisions of the Revenue Act.

I wish we could get away from that word "relief." Business wants relief from inequity, but it should ask no more. I am afraid that there are a number of men in management who are looking less for equity than they are for hand-outs, and hand-outs are always more costly in the long run than they are worth. American business cannot afford to ask for or to accept anything more than plain justice. If it is to survive it must continue in the future as it has been in the past,

dynamic, independent, willing and able to stand on its own feet and to accept its own risks. It is this that has made our country great. When business starts to ask favors from Government it is writing its own death warrant.

While on the subject of reserves, let me point out that the mere setting up of a reserve, no matter what you call it or how carefully you estimate it, is not enough. You can't reconvert, you can't pay dismissal wages, you can't meet any of the other deferred costs and you can't prepare to resume the ordinary pursuits of peace with a bookkeeping entry. If your reserves are balanced only with brick and mortar you might as well not have set them up. I believe strongly that reserves should be set up in cash or quickly negotiable Government securities, and disassociated from working capital. They must be kept so you will have the cash when you will need it.

The officers and others making up the renegotiation boards of the Army, Navy and other services are carefully selected men. They average a high degree of ability and are, I am convinced, ready, even anxious to give you a square deal. Don't meet them with a chip on your shoulder, don't quibble over trifles and don't be hoggish. I know that any individual in management will resent the suggestion that he could possibly be so described, but there have been cases. Hoggishness is at the least unpatriotic.

Let us turn our attention for a little to termination and cancellation, particularly to terminations after the war. Your overriding objective after the war will be to clean up your war business, get rid of inventories, tools, etc., you do not need in peace production and get your plants back into shape for turning out whatever it is you normally produce. And many will need money, ready cash, since it is probable that large sums will be tied up in inventory.

In talking about termination however, we must remember that we don't know the probable method of procedure in handling them. Right now we have a dispute on between the various services that let the original contracts and the Controller General, who is insisting on the right to making a complete audit before the contracts are finally settled. I believe that, if everything has to go through the General Accounting Office the results would be fatal for business and that it would take generations before the last settlements would be reached. I can see bankruptcies as thick as autumn leaves if the Controller has his way. Apart from this, it seems to me that the logical people to settle contracts are the men who made them and

who understand the problems involved. If the Army, the Navy and so on are given the right to make final settlements, unaudited except for fraud, I believe that settlements would be reasonably prompt, although even in this case you cannot expect them to be made overnight. It is going to take some time.

Whatever the methods of settlement, you are going to have two major problems, that of gearing your plant and especially your payroll to a much smaller rate of operations, temporarily we all hope, and that of inventory.

I have been thumbing through P. R. 15, the war contractor's Bible, with which I am certain you are all far more familiar than I am. From this, and from the logic of the situation I believe that you will have a little time before the final word is written on your operations. I don't just see how work can be stopped immediately and completely on the majority of contracts for such things as guns, tanks, planes, etc. When Victory Day comes you will have a large volume of work in process, much of which it would be distinctly uneconomical to convert into scrap rather than to finish. Logically, it appears that much of this work will be completed and that this will permit you some gradation, not much but some, a tapering off in your operations and employment. If I am wrong the result is likely to be a chaotic condition of business and employment.

There is another factor in the situation. So far as we can judge today the war will not end, as did the First World War, practically overnight. Fighting on one major front should involve less men, materials and money than fighting on two. In this period it should be possible to make some readjustments towards a peace basis for industry.

I am worried about the inventory situation that may develop after the war. According to the figures of the Department of Commerce, industrial inventories at the end of September stood at nearly seventeen and three-quarter billions of dollars, against less than ten billions at the close of 1938, the last year ending before the war. Of this inventory something like eight and a quarter billions was represented by raw materials.

Let's forget the inventory of finished goods and of work in process. Most, possibly all of the increase in those appear due to war contracts and presumably will be taken care of, in the main, in contract settlements. But let us look at the raw material picture. The figure for this is about double normal peace inventory as measured by 1938 or 1939 figures. Industry is going to have to absorb this one way or another.

Even if we assume that the Government will take over a large percentage of this inventory in the final settlement of war contracts this inventory will sooner or later, and probably sooner, come back on the market in competition with new producers goods. These stocks are not going to be buried, like gold, in the hills of Kentucky.

Of course, the Government is not going to take over a large part of this inventory. Much of it industry will need and will absorb in settlements of contracts. It is going to need a good deal of material. But this large inventory figure includes a lot of overbought material, much of which will not be of much use for ordinary production. As a rule, in times of rising activity there is a tendency to buy ahead so as not to be caught short of needed goods as well as for fear of higher prices. Some industrialists have told me they had discovered their stock in such shape that a sudden ending of the war would mean terrific inventory losses. These have taken or are taking steps to correct the situation, but I am convinced that many are in the same peril and do not realize it.

Are you certain that you have not accumulated more inventory than you need? And if you have, are you also certain that your sub contractors have not been on a buying spree. If so that is going to hurt you. Finally, are you entirely certain as to what are your liabilities and responsibilities in respect to the inventories of these sub-contractors?

Let me suggest that you check up carefully on your inventories and that you do a little missionary work with your sub-contractors. It is of course, possible, that the dammed up demand of the public for the products of peace will dissolve all your worries under this head, that your stocks will evaporate and you

will need more. I hope so, but I would rather be safe than sorry.

Another thing, if you want your contracts closed up expeditiously and satisfactorily, keep your records complete and in good shape. Whether you settle by negotiation or by "formula," whether you use the inventory method or the over-all cost method, correct presentation of figures and facts is going to be important. The large national corporations, employing big accounting staffs and experts, should have little trouble on this score. I am not so sure about all the smaller ones. There is no criticism implied, as I believe that, given an organization of limited size, the problems of production in war come far ahead of those of bookkeeping. But the latter is desirable, as far as possible.

I have already referred to the cash needs that will arise after the war. I do not know, any more than you do, whether you are going to get advances from the Government. Several concerns, I understand, are depending upon V loans, or V-T loans to carry their inventories pending settlement and to provide them with cash to resume peacetime operations. This does not seem a bad idea. Yet if this becomes widespread, it might on the one hand lead to a bad credit situation eventually; on the other, it might prove something of a temptation towards laxity, especially in respect to inventories. I am all for such loans where necessary, but I would deplore any tendency towards relying upon them as a sort of monetary cureall. I don't like debt, either individual or corporate, if there is any way of avoiding it.

I believe there are many and grave dangers facing our economy after the war and that the best way to face these is for business to put its house in order to the best of its ability.

Manpower Employment after the War (Continued from page 39)

Such a plan, as I have in mind, I believe through occupational training—Industrial, Commercial, Agricultural, will spread men over wider fields and relieve the congestion of applicants at the doors of industry. Moreover, these training programs, depending on the vocation, will act as a cushion, preventing people from being dumped on the employment market all at one time.

The first trickle of returning soldiers is already seeping into the country. This trickle will mount and mount, until it becomes a torrent. Either we harness this torrent by directing it intelligently into its natural canals, or it will be a torrent that will sweep before it many things we now hold dear, and which we consider indestructible.

It must not be again "Too little, and too late."

Cost Reduction Now for Post-War Competition

By W. RANDLE MITCHELL

Works Accountant, Bendix Aviation Corporation, Philadelphia Division

THE question of a cost reduction program during the present period, as well as a consideration of post-war planning is of vital importance. To be successful, a company must fill an economic need, must give the public what it wants and when it wants it, and at a price it can afford, or is willing to pay. As we swing to a peacetime economy, we will in many cases have to re-develop old, or to find entirely new markets, to find new applications or uses for our present or new products, and be prepared to meet vigorous and determined competition. Today most of us have one market and one customer, tomorrow we may be faced with entirely new conditions. The preferential advantages which we now enjoy, that is volume production at prices which amount to almost a guaranteed profit level, may be replaced overnight with the realization that continued existence will be determined by an entirely new set of rules. Our post-war world is likely to be much the same as the old one, in that there will be no synthetic compounds to ring the bells of victory, and the measure of success will be intelligent planning and plenty of hard work. If we have a sound, progressive and aggressive organization, we have nothing to fear for the future, but if we are not competitive, we have no moral right to expect to continue, and the facts of life clearly indicate that we will not.

Our cost control and cost reduction program should furnish us with a medium with which we can develop that unity of purpose so necessary to successful operation. It can be the means of arousing the interests and enthusiasm in our groups that will produce the kind of end results which cannot be denied. It gives us the opportunity to develop team work and co-ordination because every member of our industrial family has a personal part to play. Our job is to maintain smoothness of operation and effort. Our program starts when our customer places his order, and ends when we make satisfactory delivery of our goods or services. In this we should have a plan, and in sufficient detail that those who are to play the supporting parts will know what is expected of them. Our plan should be big enough to cover the entire activity and small enough to permit free, interested activity of the smallest unit.

We can, only in rare instances, maintain a progressive cost reduction program without having first seen to it that we have an effective cost control program. Therefore, it is important that we review our control features to determine if we are operating on a sound basis. If we have demonstrated mature and stable judgment in the conduct of our affairs, we will have gone far in solving the problem of arousing and maintaining interest in a cost reduction program. The scope of our activity in this direction will include the following groups, all of which have an important contribution to make: the Sales Department, the Administrative Staff, the Manufacturing Organization, the Engineering Group, and the Cost Reduction Committee.

Sales Department

The Sales Department furnishes us not only with the orders which keep our establishments in operation, but can in addition, supply information which will go a long way to make our planning job a success. Through salesmen's contact or by market research, they can inform us as to our relative position as regards to customer preference, the strong and the weak sales quality of our products, and the trend of demand as regards to competitive goods. This viewpoint is important, and when considered with the statistics compiled by the administrative group, together with a sales budget which shows types of products anticipated to be sold during the individual months ahead, will serve not only to maintain keen interest in the sales program, but also furnish the basis upon which factory operations can be planned. The type of sales budget mentioned and which is recommended is outlined by EXHIBIT A. As indicated on this exhibit anticipated orders are shown by model, the number of units estimated to be sold, and the unit sales value, showing the month in which it is expected that such anticipated orders will be booked. This is a dynamic type of budget and can be developed on a monthly, quarterly, or semi-annually basis, depending upon the requirements of the particular business.

This exhibit is developed on the basis that there will be a monthly revision, and the upper section of

the chart shows the budget for a full year (January to December, inclusive), which would be in use during the month of January, while the lower section of the exhibit shows the same information that would be compiled for the month of February. The lower section reflects the dropping of the month of January at the left-hand side of the chart, and the addition of the month of January at the right hand side of the chart.

plays in our decisions. The short view, or the immediate need, under normal conditions should not be extended beyond three or four months. Beyond that period, under most conditions, the budget is subject to considerable change, but within the selected or short view period there should be a reasonable degree of accuracy. This type of budget has the advantage of reflecting current changes as they occur, as well as giving weight to customer buying habits,

EXHIBIT A
MONTHLY BUDGET OF ANTICIPATED ORDERS PREPARED FOR THE MONTH OF JANUARY

Model		Short view				Long view							
		January	Feb.	March	April	May	June	July	August	Sept.	October	Nov.	Dec.
A	No. of units.....	100	200	200	150	150	250	250	300	300	250	200	100
	Unit sales value.....	\$ 10.50	\$ 10.50	\$ 10.50	\$ 10.50	\$ 10.00	\$ 10.00	\$ 10.00	\$ 10.00	\$ 10.00	\$ 10.00	\$ 10.00	\$ 10.00
B	No. of units.....	500	600	600	700	800	800	900	900	750	750	600	500
	Unit sales value.....	\$ 25.00	\$ 25.00	\$ 25.00	\$ 25.00	\$ 20.00	\$ 20.00	\$ 20.00	\$ 20.00	\$ 20.00	\$ 20.00	\$ 20.00	\$ 20.00
Total units.....		6,000	8,000	8,000	8,500	9,000	9,500	10,500	11,000	9,500	9,000	8,000	6,000
Total sales value.....		\$135,500	\$171,000	\$171,000	\$190,750	\$212,500	\$234,250	\$277,750	\$299,500	\$230,000	\$205,000	\$171,000	\$135,500

MONTHLY BUDGET OF ANTICIPATED ORDERS PREPARED FOR THE MONTH OF FEBRUARY

Model		Short view				Long view							
		Feb.	March	April	May	June	July	August	Sept.	October	Nov.	Dec.	January
A	No. of units.....	200	200	150	150	250	250	300	300	300	400	400	400
	Unit sales value.....	\$ 10.50	\$ 10.50	\$ 10.50	\$ 10.00	\$ 10.00	\$ 10.00	\$ 10.00	\$ 9.00	\$ 9.00	\$ 9.00	\$ 9.00	\$ 9.00
B	No. of units.....	600	600	700	800	800	900	900	750	750	600	500	500
	Unit sales value.....	\$ 25.00	\$ 25.00	\$ 25.00	\$ 20.00	\$ 20.00	\$ 20.00	\$ 20.00	\$ 20.00	\$ 20.00	\$ 20.00	\$ 20.00	\$ 20.00
Total units.....		8,000	8,000	8,500	9,000	9,500	10,500	11,000	9,500	9,500	9,000	8,500	8,500
Total sales value.....		\$171,000	\$171,000	\$190,750	\$212,500	\$234,250	\$277,750	\$299,500	\$230,000	\$230,000	\$200,000	\$180,000	\$180,000

In the use of such a budget we must recognize first that it is an estimate, and that it reflects the condition of a particular day, and that we will repeat the process each month or at some regular period. Our budget serves two purposes, one an immediate need which we have called the short view, the other the long or forecast trend. As we will use these budgets in our factory planning, our sales people should be thoroughly familiar with this fact, and understand the important part that their estimate

seasonal purchasing, customer peculiarities such as the influence of the expiration of budget periods, changes in the units value cost, anticipated competitive situations which may be developing, a change in the unit value, or the increased volume which we hope to sell because of our own improvement in the price or the sales utility of our products. Such a budget contemplates a thorough understanding on the part of our sales people as to the importance of furnishing reliable estimates. These estimates can be devel-

oped from a review of propositions or estimates quoted, but in general must be based on a thorough knowledge of the sales market. The final sales budget

While the information shown by this exhibit is of value in giving us a viewpoint of the trend of things to come, it is necessary that we develop this informa-

EXHIBIT B
ANALYSIS OF REQUIRED SHIPPING DATES COVERING ANTICIPATED ORDERS

Orders to be booked during		Shipments will be required during												
		Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
January	Units.....	..	..	3,000	3,000	.....	.....	.....	..	..	..	..	..	6,000
	Sales value....	..	..	\$67,750	\$ 67,750	.....	.....	.....	..	..	..	..	..	\$135,500
February	Units.....	..	..	.....	4,000	3,000	1,000	.....	..	..	..	..	..	8,000
	Sales value....	..	..	.....	\$ 85,500	\$ 75,000	\$ 10,500	.....	..	..	..	..	..	\$171,000
March	Units.....	..	..	.....	1,000	3,000	2,000	2,000	..	..	..	..	..	8,000
	Sales value....	..	..	.....	\$ 25,000	\$ 75,000	\$ 35,500	\$ 35,500	..	..	..	..	..	\$171,000
April	Units.....	..	..	.....	.....	.....	5,000	3,500	..	..	..	..	..	8,500
	Sales value....	..	..	.....	.....	.....	\$125,000	\$ 65,750	..	..	..	..	..	\$190,750
Totals	Units.....	..	..	3,000	8,000	6,000	8,000	5,500	..	..	..	..	..	30,500
	Sales value....	..	..	\$67,750	\$178,250	\$150,000	\$171,000	\$101,250	..	..	..	..	..	\$668,250

EXHIBIT C
MONTHLY BUDGET OF REQUIRED OUTPUT PREPARED FOR THE MONTH OF JANUARY

	Short view				Long view							
	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
Open orders on books January 1, scheduled to be shipped during	9,800	10,200	7,000	4,000	4,000	2,500	4,250	1,250				
	\$190,000	\$221,000	\$160,000	\$ 82,000	\$ 84,000	\$ 60,000	\$120,000	\$ 30,000				
Estimated new orders to be received, required to be shipped during	.....	.....	3,000	8,000	6,000	8,000	5,500	10,000	12,500	10,000	8,000	7,000
	.....	.....	\$ 67,750	\$178,250	\$150,000	\$171,000	\$101,250	\$200,000	\$250,000	\$200,000	\$160,000	\$175,000
Total shipments required during	9,800	10,200	10,000	12,000	10,000	10,500	9,750	11,250	12,500	10,000	8,000	7,000
	\$190,000	\$221,000	\$227,750	\$260,250	\$234,000	\$231,000	\$221,250	\$230,000	\$250,000	\$200,000	\$160,000	\$175,000
Plant capacity units.....	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
Capacity—units												
Over												
Short	5,200	4,800	5,000	3,000	5,000	4,500	5,250	3,750	2,500	5,000	7,000	8,000

in many cases will be the result of specialized studies by geographical locations, by customers, or industries, or other data required for a fully developed sales program.

tion in such a manner that it can be effectively used in our planning. For this purpose we call attention to EXHIBIT B which is an analysis of anticipated orders, showing required delivery dates. While the chart

which we are discussing shows the activity for the operation as a whole, the totals which are indicated will have to be developed from a study of each model, or based upon certain leading models which may represent the larger percentage of the anticipated

that we see on the bottom or total line the estimated shipment that will be required in connection with the sales budget. This line shows that we expect to be called upon to produce and ship in addition to those orders now on our books 3,000 units during March,

EXHIBIT D
MONTHLY COST DETERMINATION PREPARED FOR THE MONTH OF JANUARY

Model A		Short view				Long view							
		January	February	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Units required		1,200	1,020	1,000	1,200	1,000	1,050	975	1,125	1,250	1,000	800	700
Factor	Unit value												
Material.....	\$ 4.50	\$ 5,400											
Labor fabrica.....	1.00	1,200											
Labor assy.....	1.00	1,200											
Burden fabrica.....	1.25	1,500											
Burden assy.....	1.15	1,380											
Shop cost.....	\$ 8.90	\$10,680	Extended value				Extended value						
Engineering.....	.50	600											
Tools.....	.35	420											
Royalty.....													
Selling expense.....	.03	36											
Admin. expense.....	.07	84											
Total cost.....	\$ 9.85	\$11,820											
Total sales value.....	10.50	12,600											
Profit or loss before taxes.....	.65	780											

Model B													
Units required													
Factor	Unit value												

business, with an over-all estimate as to the balance of the anticipated orders. This study, of course, would be prepared at the same time the information shown on EXHIBIT A is compiled, but in addition to a review of the unit and sales dollar volume, the information on exhibit B may prove of considerable importance.

A review of EXHIBIT B shows us that of the 6,000 units estimated to be sold during January, 3,000 will be required during March and 3,000 during April—that of the 8,000 estimated to be sold during February, 4,000 will be required during April, 3,000 during May, and 1,000 during June. Each month's estimated sales are forecasted on a similar basis with the result

8,000 during April, 6,000 during May and so on to the end of the budget period.

The information developed on this exhibit is then carried forward to EXHIBIT C.

EXHIBIT C is intended to give management a view of the required output of the operation, and our first item shows the number of units and the sales value of open orders on the books at the beginning of the period, and the schedule of how they are to be shipped during the individual months as shown. The second item shows estimated new orders to be received by units and dollar value and the months during which shipments will be required. This information is

carried forward from EXHIBIT B which we just discussed. The third item on the chart shows the total estimated shipments (number of units and value) which will be required in each of the months, which is the result of adding the total open orders on our books at the beginning of the period, to the estimated

Such studies should however give us some general idea as to how much additional business we can handle, or if we have reached capacity in any period.

Our next study indicated as EXHIBIT D is our monthly cost determination. The short and the long view is carried on this exhibit as well as the number

EXHIBIT E
EXPENSE DISTRIBUTION—PLANT SUMMARY PREPARED FOR THE MONTH OF JANUARY

Factors	Actual prior month	Standard	Short view				Long view							
			January	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Material.....			\$ 85,500											
Fabrica. labor.....			10,800											
Fabrica. burden.....			\$ 13,500											
Per cent to fab. labor.....	127%	125%	125%	Extended values										
Assy. labor.....			\$ 10,000							Extended values				
Assy. burden.....			\$ 11,500											
Per cent to assy. lab.....	113%	115%	115%											
Total shop cost.....			\$131,300											
Engr. expense.....			\$ 9,500											
Per cent to shop cost.....	7.5%	7.2%	7.2%											
Admin. expense.....			\$ 2,850											
Per cent to shop cost.....	2.3%	2.1%	2.1%											

new orders to be received, and arriving at a total of the required monthly output. Plant capacity is also shown on this exhibit, and the excess or shortage of plant capacity in relation to required output is indicated. Our ability to meet a required shipping program will of course be influenced by our methods of conducting our particular business. In some cases we will manufacture and stock complete units and ship orders from stock, in other cases we will stock parts and make sub-assemblies and final assembly when customer orders are received, and in other cases the complete manufacturing program will start only upon receipt of a customer's order.

The variation in the operating policy will of course influence the conclusions which are reached as a result of a study of these first three exhibits, but it is possible that these Exhibits may prove of considerable value to us in arriving at policy decisions. It is not implied that such exhibits are in themselves complete and final, but should be supplemented with information which will permit them to serve the purpose for which they are intended. By way of illustration, if we have forecasted sales of models which have not as yet been fully developed, this, of course, must be taken into consideration as well as the time necessary to secure tools to produce any new models which may have passed the developmental stage.

of units, which, in this case, will be the number of units required to be shipped during the period as shown by exhibit C. This is intended to develop the cost factors by models and show the influence of the cost of a particular model on the business as a whole, also to provide information which will be used in some exhibits which are to follow. Judgment will dictate whether a similar study will be necessary for each model, or if a study will be required only on those models which represent the major portion of our business, and an over-all estimate made covering the balance of the output. The factors shown on the left-hand side of the chart can be based upon standard values, on information taken from existing detail cost records showing past history, or can be developed based upon an estimate of the future. This chart furnishes us with a view of the profit picture on each model selected, and when a complete study is made of all of the models involved, shows the effect that a loss on a particular model will have on our total profit picture. It can also be summarized to show the per cent of our business which is sold at a profit, also by profit percentage groups. This chart also furnishes us with a basis for review along cost reduction lines, and a copy of this chart placed in the hands of the cost reduction committee will furnish them with very

valuable information covering those items on which their efforts might profitably be employed.

Control Report

Our next exhibit marked E is compiled from data prepared from the study on cost determination. This

details in most cases to arrive at a basis for cost determination as covered by the previous exhibit, the report now under discussion gives management a bird's eye view of over-all expense trends. In connection with our discussion of cost control, it is of course important that we have a well planned and organized

EXHIBIT F

ANALYSIS OF MATERIAL REQUIREMENTS IN RELATION TO INVENTORY AND COMMITMENTS PREPARED FOR THE MONTH OF JANUARY

		Short view				Long view							
		January	February	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
(1)	Material required for shipments to be made during	85,500	90,000	88,000	120,000	95,000	97,000	85,000					
(2)	Orders to be placed during (note A)	120,000	95,000	97,000	85,000								
(3)	Materials estimated to be received during	88,000	120,000	95,000	97,000								
(4)	Inventory at beginning of period	200,000	202,500	232,500	239,500								
(5)	Estimated change in inventory—line (1) minus line (3)	+2,500	+30,000	+7,000	-23,000								
(6)	Estimated inventory end of each month line 4 - 5	202,500	232,500	239,500	216,500								

Note A. Based on 30 day supply requirement, also 60 day manufacturing cycle.

is a summary of all products. Here we have an abbreviated profit and loss statement which indicates estimated expenditures for the period ahead compared with standard values and actual for prior months. There are no standards shown for material and productive labor as these factors will change depending upon the distribution of the products to be shipped. However, burden, engineering, administrative expense are related to a standard, and in this manner we will be able to determine if our estimated expenditures in connection with these items are in line with the standards which we might expect, also the actual experience in prior periods.

This exhibit is in the nature of a top management control report, and as it is necessary to prepare these

budgetary control procedure in effect. If this has been established, it will not be too difficult to arrive at a reasonable estimate covering future periods. This exhibit can also become the basis for various control reports, such as the one above and which we have designated as EXHIBIT F—Analysis of Material Requirements in Relation to Inventory and Commitments. Our inventory values are in most cases clearly stated in our financial reports, and need only the development of a control medium, which relates the amount of inventory in our plants to the anticipated output for the immediate future, to determine if we have more inventory than will be required or less inventory than will be needed to maintain our production program. If we will include in such a control

report a record of commitments, or schedule of commitments, that is the commitments which we have made or will have to make to purchase materials, and relate this item to our future needs, we have a management tool that will provide the control which may be of vital importance in the days to come.

over of inventory, or lasting period of inventory expressed in number of months coverage related to anticipated requirements. While WPB regulations have contributed greatly to the liquidity of both inventories and commitments, especially on some of the basic raw materials, it might be in order at this

EXHIBIT G

ANALYSIS OF PRODUCTIVE LABOR REQUIREMENTS PREPARED FOR THE MONTH OF JANUARY

Fabrication labor	Model	Dept. A	Dept. B	Dept. C	Dept. D	Dept. E	Dept. F	Total
	A	\$ 200	\$ 200	\$ 200	\$ 200	\$ 200	\$ 200	\$ 1,200
	B	400	400	400	400	400	400	2,400
	C	300	300	300	300	300	300	1,800
	D	250	250	250	250	250	250	1,500
	E	500	500	500	500	500	500	3,000
	F	150	150	150	150	150	150	900
(x)	Total.....	\$1,800	\$1,800	\$1,800	\$1,800	\$1,800	\$1,800	\$10,800
(y)	Average earnings per employee.....	\$ 200						
(z)	Number of people required—lines x - y = line z.....	9						
	Number of people on roll.....	10						
	Excess.....	1						
	or Short.....							

The exhibit under discussion is established upon the premise that it will require thirty days to secure material and sixty days to process materials in our plant. Therefore, material requirements for products to be shipped during April should be ordered during January for delivery late in February and for processing during March and April and shipment during April. This is indicated on the chart by the means of arrows. The chart also serves on a limited basis as an inventory turnover report in that it shows the anticipated material included in shipments, estimated material received, and the estimated change in inventory. Unless we have a control medium of this character, we are likely to find that materials purchased in excess of requirements unnecessarily use up vital working capital, or any deficit in ordering may result in our not producing the required output on schedule. This chart can also be modified to show rate of turn-

time for all industries to look carefully to their inventory and commitment situation in view of possible terminations which may be forthcoming sooner than many of us realize.

Labor Requirements

In addition to a study of materials, we must look also to our labor requirements. This is covered by EXHIBIT G and covers an analysis of fabrication labor for a single month. Additional months will be covered in a similar manner. The labor values which we used in our cost determination are exploded departmentally, and the extended labor value entered by departments, by products, as provided for in EXHIBIT G. By adding the productive labor horizontally across the sheet we account for all of the fabrication labor in each of the models, and by adding the labor vertically we determine the total productive labor dollar

requirements of each of the departments. These totals are indicated by line (x). The next line, averaged earning per employe shown by symbol (y) when divided into line (x) shows us the number of people required which is indicated by line (z).

also from a labor relation standpoint, we should have a medium whereby we can check not only proper utilization of manpower as regards the individual worker and his assigned task, but also over-all efficiency of all productive workers in a given department.

EXHIBIT H

SUMMARY OF LABOR REQUIREMENTS PREPARED FOR THE MONTH OF JANUARY

Department	Number on roll beginning of period	Number productive employees required											
		Short view				Long view							
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
A	9	10											
B	10	9											
C	13	12											
D	14	16											
E	11	12											
F	7	5											
Total number of people required	64	64	66	66	72								
Excess or short for the current period	Excess												
	Short												
Excess or short from start of period	Excess												
	Short		2	2	8								

The exhibit likewise shows the number of employes on the roll at the beginning of the period and the number that it is estimated we will be over or short in relation to our requirements. This information can be summarized for the full budget period in a manner similar to that as outlined on EXHIBIT H. Here we show the various departments, the number on the roll at the beginning of the budget period, and the number that will be required during each month of the forecast period. Adding down the total number of people required departmentally gives us the total plant requirements for a particular period, the number in excess or short for the current period, and the accumulated excess or short from the start of the budget period. In connection with our study of labor requirements, I think that from a cost control standpoint,

Our job is to see that the right man works on the right job and has sufficient work available in order that he may earn a fair wage for the job assigned to him.

Job evaluation in many industries has not been applied to the fullest extent, and while it has not been too difficult to evaluate the factors which enter into the hourly rate determination, few industries have gone to the extent of classifying jobs to be performed to see that the proper class of employe is assigned to the proper class of work. If this is not carried out, the cost of our product may be increased, because it is seldom that a lower class of worker can meet the time requirements of a higher class, job spoilage is likely to be excessive, and where a higher classification employe works on a lower class of work, our costs are correspondingly increased. This

study is covered by EXHIBIT J which shows the department name, whether the employee is male or female, the employee's clock number, actual hours worked, the number of hours worked on standard, the number of hours earned on standard, and the efficiency of the employee while working on standard

gainfully employed on some other task. The available machine time shown on the chart is based upon the established working schedule of the department, and if there were 100 units in the department, and the work schedule was 48 hours per week, the available machine time would be 100 times 48 or 4800 hours.

EXHIBIT J

EMPLOYEES AND DEPARTMENT EFFICIENCY DEPARTMENT A—WEEK ENDING JANUARY 9, 1944

Clock number	Class	Sex	Hours			Efficiency on standard		Hours worked on class	Productive off-standard hours	Non-productive hours
			Actual hours worked	Worked on standard	Earned on standard	+	-			
102	A	M	48	40	48	20		36	4	4
103	B	F	44	36	39.6	10		36		8
104	C	F	44	38	45	18.4		30	8	6
105	B	M	48	44	49	11.3		48		
Total.....			184	158	181.6	14.9		150	12	18
Per cent of hours worked.....			100%	85.8%	x	x	x	81.5%	6.5%	9.7%

Note. Bonus earned on standard hours. No bonus earned on off-standard or non-productive hours.

hours. Also, the number of hours worked on the employee's assigned classification, and the number of hours worked on other classifications, as well as the hours worked on off-standard productive tasks, and the number of hours charged to non-productive labor. This report will tell us not only the efficiency of the individual worker at standard, but also the departmental efficiency of all standard labor. It may reveal the need for method studies, or disclose juggling of labor charges.

In line with our thinking in connection with employee efficiency, we should also give consideration to the proper utilization of equipment, and this is covered by EXHIBIT K—Analysis of Machine Efficiency. This shows the available machine time for all units located within a department and covers those units to which an operator is usually assigned, but excludes such community units as tool grinders, etc. Your attention is directed to the fact that this report is intended to show machine useage and in the event that an operator is assigned to the task of operating more than one unit, any down time on one of the units would be recorded, even though the operator was

The balance of the exhibit shows the actual machine time and the down time, and the reasons for the down time. The chart as developed here is for over-all operations and can if required be supplemented by details by departments showing individual units or classes of equipment. The information from which this report is prepared can be compiled from a record similar to that which is illustrated by EXHIBIT M. This provides for a record showing the employee's number, the starting time, and the stopping time, and the number of hours the machine is in operation. If the machine is down, the reason symbol as shown by the right-hand side of the chart is entered in place of the employee's number. By way of illustration if the machine was down waiting for tools, the symbol (a) would be indicated, if operator was not available, the symbol (k) would be used in place of the employee's number.

Up to this point we have been reviewing fundamental operating control. We started first with the sales budget which we developed into a required shipment or output budget, then a cost determination analysis, a survey on material and purchasing com-

mitments, then the development of labor requirements, labor efficiency, and machine utilization. If we have done a good job in our control program, we will have accomplished many cost reductions in the organization of our procedures to carry on our daily work. However, we must go beyond this point if

lines. I think that it is fundamental that our cost reduction efforts should be directed first to those products where orders are already on our books and where it is anticipated that additional orders will be received. A well organized cost reduction committee, should include a responsible engineer, a manu-

EXHIBIT K
ANALYSIS OF MACHINE EFFICIENCY—WEEKLY

		Dept. A	Dept. B	Dept. C	Dept. D	Dept. E	Dept. F	Dept. G	Dept. H
Available machine time based on working schedule	hours	4800							
Actual machine time based on usage	hours	3600							
	%	75%							
Idle machine time (Down time)	hours	1200							
	%	25%							
A. Waiting for tools.....		10							
B. Waiting for material.....		35							
C. Waiting for inspection.....									
D. Waiting for orders.....		800							
E. Engineering delay.....		50							
F. Machine re-location.....		10							
G. Waiting for setup or reset.....		50							
H. Machine breakdown.....		45							
J. Tool trouble.....		100							
K. Operator not available.....		100							

we are to maintain or to succeed in developing leadership in our industry. I do not imply that the suggestions which we have been discussing today answer the many problems which face industry. It is however, my belief that fundamentals properly developed will in themselves serve to aid in reducing cost.

Cost Reduction Committee

In general, cost reductions are not easy to find, and it requires considerable investigation to determine products or methods which require study. If we return to the exhibit covering cost determination, we find that we have a basis for review along cost reduction

facturing methods man, a time study representative, and an experienced cost man or cost estimator. The committee can be supplemented by personnel from inspection, production and planning, sales, tool design, or other departments of the business when the aid of those individuals is required. The most responsible individual of the group should be appointed chairman, and the work of this committee is of sufficient importance that the chairman should report directly to the chief executive.

It should be realized, however, that a cost reduction committee to be most effective must have the wholehearted endorsement of top management, and the

EXHIBIT M
INDIVIDUAL MACHINE EFFICIENCY RECORD—
WEEKLY

Machine Number		Machine Name						
Department		Size						
Week Ending								
DAY					NIGHT			
	Emp. Number	Start	Stop	Hours	Emp. Number	Start	Stop	Hours
Sunday								
Monday								
Tuesday								
Total	Down Time	Prod. Time			Down Time	Prod. Time		

DOWN TIME

- | | |
|---------------------------|-------------------------------|
| A. Waiting for tools | F. Machine relocation |
| B. Waiting for material | G. Waiting for setup or reset |
| C. Waiting for inspection | H. Machine breakdown |
| D. Waiting for orders | J. Tool trouble |
| E. Engineering delay | K. Operator not available |

fullest cooperation of other responsible departments, as it is not possible to operate effectively on a restricted basis. Their activities will carry them into every phase of the company's business, from selling to shipping and their investigations might conceivably call for a market research study of a particular line, product, or group of products, and it will not be unreasonable for them to make a thorough study of competitive products from both a cost and a sales-utility viewpoint.

The term Committee should not be construed to imply that the individuals selected will meet at regular scheduled intervals to carry on their work. They should spend all of their time on this work. They should review manufacturing operation sequence and time factors, manufacturing plant arrangements, material handling—scheduling—dispatching, as well as any other factors which may have an influence on the cost structure. They should have a long-range viewpoint in connection with their work, and the type of individuals selected for this task should be the kind of fellows who have their feet on the ground, but their eyes on the stars.

While the cost reduction committee can not be limited in scope neither can such a committee carry the full responsibility for cost reduction. They of course have an important part to play, but will deal largely with particular studies such as the improvement in cost structure of a model or line of products, and will as a result of their findings, as each model is reviewed, carry to all models the benefits of their findings, in order that over-all results will show improvement as well as the particular model under review.

The budget of our cost reduction committee as regards to a particular model might be expressed in a manner similar to that outlined in EXHIBIT N. This shows the selling price and cost trend during the period of actual production, the objective cost which may possibly be reached as a result of changes in manufacturing routines and the ultimate cost which may be realized only by major changes in design of our product. You will notice that we have illustrated the change in the selling price, the total cost, also material and labor, and the margin before taxes. Other items can be added or omitted depending upon requirements of the business. While such a report may be made available only to top management, there are many others in the organization group who may have need for selling price and cost information similar to the report described by EXHIBIT P. This

report shows the progress made during prior periods as compared with standard and when considered with the cost reduction forecast just reviewed, furnishes a sound basis for management control.

It is important that all departments of our business be encouraged to share in the cost reduction program.

groups in relation to the cost reduction program. I believe that an over-all budget which calls for cost reductions of $\frac{1}{2}$ of 1 per cent per month of the estimated annual sales volume of the plant will not be unreasonable in most industries. Our cost reduction program should be most effective at the time new

EXHIBIT N
COST REDUCTION FORECAST, MODEL A
Nine Months Interval

	January, 1943	Sept., 1943	June, 1944	March, 1945	Dec., 1945	Sept., 1946
Selling price						
Total cost		Actual		Objective		Ultimate
Labor						
Material						
Margin before taxes						

Foremen training courses, general meetings and discussions should carry a cost reduction message. The suggestion system should be used to encourage new ideas. Most of the ideas which we will use are those which are likely to be considered as small savings, which in the aggregate will have a decided effect on the cost of our products. Therefore, we must encourage many ideas, and I am sure that we will find plenty of talent and brains available in our plants. Our problem is to dig deep enough to get the benefit of collective thinking. I know of one instance where aluminum drop offs from strips of random lengths, when changed to exact requirements resulted in a saving of \$70,000 a year, another instance where a stud core, machined from bar stock was changed to a pressure welding operation with the saving of 6,000 pounds of material a year, another where a plate was retooled which resulted in material savings of 5,000 pounds per year.

Every department in our plant should be asked to submit cost reduction budgets covering their operation, and records should be maintained and reports issued showing the progress made by the individual

products or redesigned products are on the drawing boards of the engineering department, because it is at that time changes can be made that will require the minimum of expenditure. The aim of the cost reduction program is to reduce cost and to do it in such a manner that if possible the utility value of our product will be increased. I do not think there is anything incompatible with the thought of cost reductions at the time we are increasing the utility value or improving the quality of our products. The motto "when better automobiles are built Buick will build them" is not only a pledge of improved quality but also implies that the improved standards will be available at the same or lower costs. To General Electric "more goods for more people at less cost," is a pledge of cost reduction through methods or research, but they have clearly demonstrated the fact that this will be accomplished without a reduction in the quality of the products which they produce, but rather an improved product at lower costs to the purchaser.

In summary, our cost reduction efforts can be justified not only because of the benefits which will

accrue to those who have been successful along these lines in a particular industry, but because of the fact

that our efforts will result in a contribution to the improvement in our standard of living.

EXHIBIT P
PROFIT STUDY AND COST TREND REPORT—MODEL A

Sales price	Standard	December, 1943	June, 1943	December, 1942	June, 1942	December, 1941	December, 1940	December, 1935
	\$10.50	\$10.50	\$10.50	\$10.50	\$11.00	\$11.50	\$11.50	\$13.00
Material.....	4.50							
Productive labor.....	2.00							
Burden.....	2.40							
Tools.....	.35							
Engineering.....	.50							
Royalties.....								
Administration.....	.07							
Selling.....	.03							
Total cost of sales...	\$ 9.85	\$ 9.85	\$ 9.85	\$ 9.85	\$10.25	\$10.70	\$10.70	\$12.10
Net income (before taxes).....	.65	.65	.65	.65	.75	.80	.80	.90
Sales volume								
Total units sold.....	x	12,200	x	10,400	x	7,600	6,000	3,500
Total units on order	x	4,500	x	x	x	x	x	x

Total units sold will be the number sold for the full year.

Total units on order will be the orders on hand at the time report is issued.

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How to Reduce Costs by Effective Method Studies

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COST is made up by expenditure for labor, material, and overhead. Some industrial organizations believe in segregating costs into two classifications, namely material and overhead, taking the sum total of the expenditures which go to operate the place and listing them under the name of overhead. They believe in this type of cost accounting because it is convenient for them to keep their books. Organizations of this type sometimes have an overhead cost ranging up to 600 per cent.

Other organizations use a break-down along the following lines: (1) Place against cost expenditure for all direct labor and (2) put into the material cost all expenditures for raw materials and purchased parts bought for the finished product. (3) The last of the three items making up cost is overhead which, as you all know, consists of salaries for indirect employees, taxes, depreciation of equipment, and utilities expenses.

Still other concerns, after effective methods studies have revealed the shortcomings of these two systems, have adopted different cost systems.

Direct Labor

Many methods studies can be undertaken and, if they are made effective, they can contribute to the reduction of manufacturing costs. Reduced manufacturing costs ultimately mean that, through the effective application of methods, we put the least amount of time, money, and effort into converting the material from the raw state to the finished product. These studies should cover, in the first place, the methods which are used to obtain the best results from your direct employees. There are two approaches to the problem of reducing direct labor charges.

One is strictly psychological and the other is social. A method study of the psychological facts underlying the labor relations which exist in your plant may produce a picture which, if properly implemented with decisions by management, can go far in reducing costs. A study of the environment, such as the inside appearance of your plant, may disclose that a more cheerful atmosphere would put the direct worker in a more

favorable frame of mind. His contact with understanding supervision and with his fellow workers, likewise, is worthy of study. Many of the methods used by the old time machine-shop boss will not produce the wished-for results in our day and age, so that a close scrutiny, from an industrial engineering point of view, of the methods employed by supervision, along with employee-employer relations, may produce food for thought if you wish to keep manufacturing costs down. Some companies have conducted very extensive studies in this respect, and I believe that most of you are well aware of the startling results obtained.

The association that exists between co-workers and between workers and supervision is, at all times, an item not to be overlooked if you want to study effective methods which will tend to reduce manufacturing costs. In an over-all manner, the problem can best be studied by scrutinizing total labor turnover figures for an organization, so that a statistical analysis will disclose relations which, likewise, may offer possibilities for effective means of reducing manufacturing costs.

The psychological approach to reduction of direct labor costs is, of course, not the only one. Management can become very effective in measures to reduce manufacturing costs if they conduct studies which will determine the social conditions among the rank and file. These social relations are, perhaps, best studied by comparing the cost of living index in the community involved with the going comparable wage rate levels in the community.

Both psychological and social studies lead us directly to the consideration of bonus or wage-incentive plans. A good study of shop conditions which pivots around a certain section of a department sometimes proves that a form of incentive may promote increased psychological and social satisfaction. A group bonus almost invariably will promote the understanding and cooperation of the group for obvious reasons. The opportunity to earn more than the standard wage in almost every instance will make for happier social conditions. In this connection, it is

well to stress the importance of setting standards which will provide for attainable added earnings.

Often the bonus or incentive plan is not resorted to as an effective means of reducing cost, as well as rewarding labor, because the prevailing labor relations in reference to the setting of standards are not of a grade which would permit the establishment of a bonus or wage incentive plan.

Study of Materials and Tools

The next phase of our discussion concerns itself with method studies leading to a more effective use of materials and thereby bringing about reduced manufacturing costs. In order to convert raw materials into finished piece parts economically, we need a material which is suitable, both from a processing and a durability point of view, keeping in mind the job it is selected for.

The material angle is not confined to the selection of the material and the processing alone; it relates as well to the customer's wishes and requirements and often functional considerations are of importance as well. In this connection, a recent actual experience comes to mind. One of our process engineers visited a plant of a company which makes similar products to our own and, in a casual conversation, learned that the material which the concern was procuring for a certain part represented a material cost of \$17.00. On his return, an inquisitive mind could only be set at rest after he had ascertained what we paid for the same, or a like, part. He discovered, much to his dismay, that we were paying \$38.00. The material, while not quite the same, as far as the customer's specifications were concerned, served the purpose as well and, in some respects, better.

The true research mind will not be satisfied with the state of affairs as it exists, but will delve into the matter and sometimes even create artificial problems. The pursuit of such problems often offers opportunity for hypothetical reasoning and the over-all result of the investigation may show that material cost can be lowered by a novel approach. Experiences along this line are manifold; recent ones are part of the substitution battle which industry fought at the beginning of this war. At the present time, instruments are being made by our company which contain hardly any aluminum at all, even though aluminum is not now as critical as it was at the time we pursued intensive methods studies in order to find processes and materials which could do as good a job as aluminum. Not only have we found substitutes, but we like the sub-

stitutes better. Necessity has proved to be the mother of twins, that is, of improvement as well as invention.

Steel and Plastics

An instance is the use of a steel stamping as the bottom plate for an instrument enclosure; and another is the use of a plastic cover for the hood of the same instrument. Only a little while ago, this combination could be made from aluminum only because of weight factors. With rare exceptions, the intensive study of methods in connection with substitutions of materials brought about the development of new metal removing and metal forming processes. Many of you are familiar with the use of Kirksite which has proved so useful in forming skin surfaces for airplanes. It used to take weeks before mahogany or steel dies could be procured; today it takes hours to make Kirksite dies which, of course, are fabricated by the molding process. While it is true that these Kirksite dies do not have the same life expectancy as the former steel dies had, the production runs which you have to get from them are frequently short and subject to changes anyway; and, if they are fairly long, nothing prevents us from making two, three, or even four sets of dies and using them consecutively to cover the requirements of a particular contract.

Another instance of methods studies producing the wished-for results is the application of beryllium copper. Beryllium copper took its place in war industry at the time when the demand for an equivalent to spring steel which combined the characteristics of spring steel with corrosion resisting qualities was much in evidence. The company that I am connected with, as well as many other concerns, had to buckle down to the job of conducting studies which would give them springs and kindred parts which were as good as, or better than, steel springs. Again, the methods studies not only produced the substitute, but, by now, we can look forward to the time when the cost of manufacture will be revised downward, if not directly, then indirectly by abolishing the need for replacement parts. If the success story on this were written, it would tell us that a methods study which concerned itself with the finding of an answer to a war demand produced results which will eventually mean reduced manufacturing costs.

Tools

Considerations of this nature lead us to other activities in the machine-shop, and again I can speak from experience when I refer to the extensive use of

carbide cutting tools on non-ferrous metals which resulted from method studies in war production plants. Feeds and speeds of innumerable machine tools were increased—in many instances as much as seven-fold. Of course, the unit cost was reduced accordingly. Once again the lesson was learned from a methods study which was conducted to meet the need for increased output, not just to make something cheaper.

At another time, we conducted studies covering all of our drill presses, and the lesson we learned resulted in reductions in cost of proportions which were considered unheard-of till that time. Speeding up this spindle, adjusting the other one, combining two or three, and substituting a multi-spindle drill press for gang drills, all brought manufacturing costs down to a fraction of what they had been before.

Some of this is easily explained if we realize that most of the machine tools were built to be used for the removal of metal on steel or cast-iron parts, but were actually being used on magnesium or aluminum parts. There may have been more than one shop in this country which ignored this fact and only recognized it after considerable studies had been undertaken.

Die Casting

Continuing to speak of effective method studies in connection with reduction of manufacturing costs with particular reference to material costs brings us to studies which explode the former belief that one had to have, at least, 5000 parts to make before it was economical to convert from sand cast parts to die castings. Only a little while ago, we succeeded in reducing the machining cost in the milling department on certain parts by 30 per cent through the use of die castings. Fifteen per cent, or one-half of that reduction, more than paid for the conversion from sand to die castings on a quantity that was considerably below the afore-mentioned 5000 mark.

Method studies also disclosed that metal forming can be done by methods which differed from the orthodox means. I am referring to what is commercially known as electro-forming. One of my experiences in this connection concerns a device which plays a part in the war and which, by orthodox means, would require over 1300 individual handlings, or operations, to produce a finished product. Of course, we know what hazards 1300 operations would present. So ways had to be found to make the part in question by other than orthodox means; and method studies pursued turned us to fabricating this part by plating,

or electro-forming. This effort was crowned by success which can be considered a milestone in the technique of the forming of metal.

Electronics may well be called the younger brother of the aviation industry because, strange as it may seem, in this war they are playing joint roles as only brothers can. And, electronics, in turn, as an industry, has problems which could only be solved by unorthodox means. Electro-forming plays a major part in solving many of these problems as well. Electronics, also, presented a fertile field for many other method studies, among which it is well to recall what the metallurgist has done. Formerly, manufacturing costs on certain articles were terrific, simply because there seemed to be insurmountable obstacles in our way when we had to combine metal and glass. This resulted from the all-too-familiar nemesis of many engineering problems, the co-efficient of expansion and contraction. Metallurgical method studies produced eventually a metal which expands and contracts in a manner which precludes breakage when exposed to extremes of temperature, even though it is practically fused with glass. It has thereby become possible to reduce the cost of manufacturing electronic tubes considerably, since the former processes brought about a rate of rejection which made financially successful manufacture difficult.

Rust Control

One last problem which found its solution by effective method study and contributed its share to reducing manufacturing costs was the control of rust. Our battle with corrosion has been waged with much force and I am happy to say that we have been successful in controlling rust during and after manufacturing processes, as well as rust on machine tools and special tools. This control which, while it is not 100 per cent, approaches that standard, has resulted largely from studies carried out by materials laboratories and production engineering groups. A distinct reduction has resulted in the rate of rejection and spoilage and, of course, product cost has decreased proportionately.

Overhead

Now we come to reduction of cost by methods studies on overhead. Overhead is brought about by such things as salaries for indirect employees, taxes, depreciation, and utility expenses. The type of method studies which will effectively reduce overhead and, thereby, manufacturing costs, generally, falls into

the field called industrial engineering and, of course, management, and that immediately brings to mind the idea of careful scrutiny of one's own department.

There, we might start to analyze whether or not the cost of a particular methods study is warranted by obtainable results; and I may say it requires fortitude of mind on the part of the department head who is responsible for the conduct of method studies. Some companies have resorted to grading such studies; other companies insist upon approval by top management of all studies the estimated cost of which exceeds a certain fixed sum; and it is very important that the objective of any improvement study be stated beforehand in clear, concise language, so that misunderstandings as to the true nature of the problem are avoided. It is vital that those who are responsible for the conduct of the study concern themselves with the time and money schedules which govern it.

Other method studies relate to the determination of percentage ratios on direct and indirect expense by department and, if multi-plant operation is being examined, by plant. It is possible, and studies have proved the possibility, to stimulate a healthy competitive spirit among departments or plants and, in that way, overhead frequently has ceased to be a "deadhead" in an organization.

Fertile fields are to be found in what is commonly called Production Control, where we enter the sphere of work movement and transportation. Study to determine the distances which a part must travel from its beginnings in the receiving department to the shipping department discloses, in many cases, terrific yardage, or even mileage. Of course, it costs money to move material and the salaries of the people who do the moving are generally charged to overhead. Material moving brings us to the paper work which governs such moves, and, once again, we often find that caution and good sense have been thrown to the winds. A real study would disclose that many of the clerks who compose the bulk of the production control personnel can be dispensed with if we lay out our shops with a minimum of work travel and consequent paper work.

The next problem on which method studies may make effective attack is the utilization of space and equipment. We know that eventually there will be more machine tools available than we need. Thus economic utilization of such tools may cease to be as grave a problem as it has been in the recent past; but this refers, of course, only to the procurement of such tools. Utilization of such tools we learned much about

during the early part of the war when we found that we could not get additional machine tools unless we utilized those that we possessed—let's say—500 hours a month; and we still could not get any even then unless we utilized them productively for at least 70-75 per cent of the 500 hours. Many a method study had to be done hurriedly and without assurance of its ultimate accuracy, just to make sure that we were loading machine tools correctly and, thereby, using them fully.

Now that lesson, which was, in many instances, forced upon us by the scarcity of machine tools, is one that industry will not forget quickly, because most of the studies which were conducted indicated that, if you utilize the productive capacity of a machine tool 24 hours a day, the wear will take place at a terrific rate, but it will amortize much more favorably.

Utilities

This brings us to method studies which tend to reduce manufacturing cost by placing the spotlight on utility expenses. Many of the present-day plants which build instruments of war in which there are numerous small parts, such as bearings, etc., are beginning to air condition their buildings, not because they are anxious to spend money, but because studies showed that it would reduce manufacturing cost on the products made in their plants. Dirt, dust, and rust could often spell doom for instruments which, by all concepts of former days, had been properly put together; and we had to learn that, if we cleaned our assembly floors and air conditioned the assembly areas, there was not only a reduction in spoilage due to the control over dust, dirt, and rust, but we also created a more agreeable atmosphere for the workmen in that area and, they, in turn, began to perform better and produce more. Thus, although air conditioning may have struck many people as just a new fangled fad, it has its definite place in reducing manufacturing costs. First studies disclosed that it was good business, and the results surely have been gratifying.

Air conditioning is not the only thing which resulted from this field of methods study. Studies covering the cost of power used produce worth-while results in the direction of reducing manufacturing costs; and it is not unusual that proper balancing and proper scheduling of your machine tools, especially at the start of a working period, will pay very considerable dividends.

Furthermore, it is true that we have changed our minds on the subject of illumination. Formerly, many people had one eye on the meter at all times, ignoring completely the fact that the results they obtained as far as manufacturing costs were concerned through poor lighting were not at all equal to what they might have attained had they adopted a more modern system of illumination.

What I have just said is not supposed to indicate that the answer to all manufacturing cost reduction studies lies in modernization. On the contrary, ideas for modernization should be entertained only when the long-range view indicates that they will reduce costs. However, it is wise that we study each problem on its own merits.

Those who plan and conduct the studies should, at all times, bear in mind that much of what they are doing concerns human beings and that, therefore, consideration must be given to human feelings and even whims. The human angle tells us how and the same *how* will rarely apply in more than one case.

Who?

We have explored the *what*, the *why*, and the *how*, and are now concerned with the *who*. Generally, it is well to tie home to management on as high a level as is convenient in the organization; and the scope of the activity, as well, may determine who should conduct it. It is true that staff functions, attached to individual departments can do a remarkable job, provided there is also an over-all coordination. In this connection, let us think of an ordinary machine shop. You have Inspection and Test, Production Control, Production Engineering, and Shop Supervision. Of course, it is evident that, if you were to permit each one of these groups to conduct its own method studies, there would be no end to entanglements and conflicts, and overhead reductions surely would not be accomplished with such an organizational set-up.

Thus, it becomes a question of establishing some form of central control within a plant or organization; and this central control must either be tied home to management on a high level or be so respected by all parties concerned that a dictatorial attitude does not have to replace the compromising, coordinating attitude in order to make effective method studies which will result in reduced manufacturing costs. So, the *who*, in one case may be a high-gear industrial engineering department right next to management and, in another case, the *who* may consist of individual groups, attached to the line positions, which will be coordinated either through management itself or through staff members attached to management.

Where?

The next point is *where* should the activity be concentrated, and that brings us to the matter of sequence. Again, it can be said that there is no iron-clad rule: the *where*, in one case, is not the *where* in another case. If your overhead is, to your way of thinking, too far out of proportion (and you may measure this by past experience and forecasted possibilities), then, perhaps, a frontal attack on your indirect expense is indicated. Your indirect employees, taxes, amortization, and others named before are the right *where's* for your attack. If you cannot meet your competition on direct cost, then it goes without saying that your *where* lies in labor and material costs which we discussed before.

When?

And now we come to our last point, the *when* of all these things. The size of your business, type of work, expansion and contraction rates anticipated, or the *status quo* which prevails, all combined will tell you when you should begin to answer in your own mind the question as to whether you have a problem which requires method studies and, if the answer is "Yes," the time is now.

What the War Labor Board Will Approve in Wage Incentives

By THEODORE W. KHEEL

Chairman, War Labor Board, Second Region, New York

THE topic of discussion. "What the War Labor Board will approve in Wage Incentives," could be answered by saying we will approve those wage incentives which are not inflationary, and then perhaps sit down. Actually, that is the whole story on wage incentives so far as the War Labor Board is concerned. It is not within our province to say whether a particular wage incentive is a good one or a bad one, or to advise one way or the other as to whether or not any particular company should install a wage incentive.

We became involved in wage incentives more or less through the back door. Originally, as you know, it was our job to pass on labor disputes and the Board has said recently—and it previously followed the rule—that it would not in any case direct the parties to adopt a wage incentive plan. The Board feels that wage incentives are matters that should be worked out through collective bargaining, if there is a collective bargaining agency in the plant, or should be installed voluntarily by the employer if there is no such agency.

Our interests in wage incentives began in October, 1942 with the passage of the wage stabilization program. But we became involved only to the extent that any particular wage incentive might be inflationary.

As you know, we have as part of the program of wage stabilization certain policies under which we will approve wage adjustments. Briefly, we allow adjustments under the 15 per cent formula, to correct wages that are substandard, or to eliminate what is referred to as gross inequities. Those are the principles we use in passing on wage applications.

In addition, and more particularly within recent months, we have received many applications involving wage incentives. In a decision which was handed down by the Board two or three months ago, involving the Grumman Aircraft plant, and in two resolutions that were adopted at the time that decision was issued, the Board said specifically that its interest in a wage incentive plan proposed for adoption was merely from the point of view of whether or not that wage incentive granted a hidden wage increase in violation

of the wage program or constituted a wage decrease in violation of the wage program.

I can explain in simple terms the types of wage incentives that would meet this simple test and those which we would disapprove by taking the example of one job which, let us say, the employer wishes to place on an incentive basis. Let us assume that this job has consistently in the past had a normal production of 100 pieces per hour, and also that the particular employee involved was receiving one dollar an hour for this job. If it is contemplated to place this employee on an incentive and to pay him at the rate of, say, a penny apiece for all pieces in excess of 100 and the standard of 100 pieces per hour is a standard that has been maintained in the past, obviously we are going to say that the wage incentive is not inflationary. It will merely compensate for the additional productivity of the employee above the accepted standard.

We have never said that the payment of more money for more work is in violation of the wage program, whether the payment be in the form of additional compensation for extra hours or for extra productivity. Of course, the decision of the National War Labor Board in the mine case was nothing more than the approval of additional compensation for additional work—an hour's additional work each day.

Now if the normal production for the job has been 100 pieces and the employer comes along and proposes to us to pay the employee a penny and a half, let us say, for each piece over 100, we will consider that to be in violation of the wage stabilization program. Or if the employer says that the standard shall be 90 pieces per hour when the normal standard is 100 pieces per hour, and he proposes to pay a penny or a penny and a half for each piece over 90, again, we will say that that is in violation of the wage program.

The difficulties we run into grow out of the fact that in particular cases you have wage incentive plans that are complicated as to the method of payment and as to the basis on which the standards are set.

Generally, we receive two types of wage incentive plans. We receive those based on the productivity of the individual employees, and recently, and more par-

ticularly since the Grumman decision, those based on the productivity of the entire plant or a sizeable portion of it. In other words, a group bonus. The former type of plan, those keyed to the work of the individual employes, gives us less trouble. As a general rule, they will be carefully worked out based on time studies and usually in accordance with some accepted method of wage incentives.

Types of Wage Incentives

In those cases where there have been time studies and standards set appropriately, almost invariably we have issued an order of approval. We do, however, require that the employer in those cases submit to us information about the past production records of the employes whom he seeks to place on an incentive, in order to enable us to check the validity of the standards set by the time study men.

Today there is a tendency on the part of many employers to go in for group incentives. They are faced with manpower shortages. Naturally they want to get the most out of the available manpower supply. Needless to say, there are many dangers involved in such group incentives plans, but of course it is not our province to advise you on whether or not you should install such an incentive.

In the Grumman case, there was a study made of past production records, and it was proposed by the company that if the present force of employes produced, I think it was five pounds of airplane per man per day or per hour, that would be considered as the standard and that if the pounds of airplane produced exceeded that standard, the employes would be permitted to share up to 50 per cent in the excess production over the standard which was accepted. There was a dissent from the labor members of the Board on the limitation of 50 per cent. It was felt by them that the employes should have full participation in the increased productivity. I believe it was the Board's decision to restrict the participation to 50 per cent because of the nature of the plant incentive.

Obviously many factors other than the productivity of the employes go into the determination of how many pounds of airplane per man will be produced during the course of any day. One obvious type of production change that will affect the pounds of airplane would be a change in the kind of airplane produced. As Dr. Taylor pointed out in the Grumman case, if a company which is producing fighter planes should receive a contract for cargo planes and bombers, the number of pounds of airplane produced would

go up materially without any change in productivity of the employees. Because of the many variables that might affect the pounds of airplane produced, participation was limited to 50 per cent. As an additional safeguard against these variable factors which would increase the total production without any increased productivity on the part of the employes, the Board put in two other provisions in its order. It said, first of all, that it was approving the incentive proposed by the company on the basis of the present operating conditions at the plant and that if these conditions changed substantially, it would require the company to make appropriate adjustments.

The Board also said that it would require the company to report to the Board every three months on how the group incentive plan was working out, so that it could check and ascertain to its satisfaction that the employes were receiving compensation, additional compensation, if they were receiving additional compensation, only in measure with their increased productivity.

That really is the whole story on wage incentives from our point of view. Each case has to be analyzed on its own merits. The principles are simple. Their application is difficult.

There are, of course, many collateral problems that come up and I might mention some of them. For one thing, a problem of this sort has often arisen: Companies will have a wage incentive for their production workers and no wage incentive for the indirect or non-production workers, and either because the standards were set too loosely in the first place, but set before October 3, 1942, so that we have no control over them, or because the employes are actually producing much more as a patriotic contribution on their part than they had previously, it will be found that the production workers are far outstripping the non-production workers. There have been cases that have come to our attention where production workers were earning as much as \$2 or \$2.50 an hour, where skilled tool and die makers and others in the machine shop would be earning substantially less. Of course, that creates a bad internal situation in the plant.

We have received applications for permission to grant a wage increase to these non-production workers to narrow or eliminate the gap between them and the production workers. We have said that these cases are very similar to an application filed with us in the first place, proposing to tie the wage rates and earnings of the non-production workers in with the production workers.

Many wage incentive plans provide that where the earnings of production workers go up, say, 20 per cent or 30 per cent under a wage incentive, the non-production workers should receive an increase of 15 per cent, or half of the increased earnings of the production workers. And we have frequently gone along with plans of that sort.

If that is an accepted method of wage incentives and one which we will approve, then we should and have approved the keying in of the non-production workers to the earnings of the production workers, even though in the first instance such relationship hasn't been established. In other words, where you have this run-away situation of the production workers earning far more than the non-production workers, and a plan is proposed to us to give the non-production workers, let us say, half of the earnings of the production workers, so long as they maintain that level of production, if the plan is one we have approved in the first instance, we will go along with it even though it wasn't part of the original plan.

Now we say that such a system should be worked out of keying in the earnings of the non-production workers with the production workers rather than the award of an outright increase, for the reason that if the earnings of the production workers for one reason or another drop and the hourly wage rates of the non-production workers have been increased, you will again have an inequality, only it will be a reversed inequality. I suppose in a situation of that sort, the employer would come back and say, "I now have to apply for an increase in the rates of the incentive workers to adjust this inequality."

Approvable Rates

One other question that has come up frequently is the extent to which we will approve wage increases for employees on a wage incentive on a comparison with our sound and tested rates. As you know, we have been instructed and have established approvable rates for various jobs, major occupations in each labor market area. We have done this under the May 12th directive from Mr. Byrnes. Under the authority given us by Mr. Byrnes, we will approve a wage increase up to these rates. For instance, here in New York we say we will approve a wage increase for an A assembler up to \$1.13, for a B assembler up to \$1.04, and so on. Now, the question has been raised, what about those cases where an employer with a wage incentive is paying rates below our approvable rates, below \$1.13 and \$1.04, but the earnings of the em-

ployes exceed our rates? Will we allow any adjustment in a case of that sort, or will we say because the earnings are in excess of our rates, that no adjustment can be permitted?

Again, the principles that we apply are simple. Their application is difficult. I can explain the principle by first taking the case of an employer who has no wage incentive. If that employer comes to us and says, "I would like permission to pay your approved rates, your \$1.13, \$1.04 and \$1.23 rates and so forth," we will approve that application under the gross inequity doctrine. If the next day that employer comes to us and says, "I would like you to approve a wage incentive for me based on those rates," we will approve the incentive if it meets the simple principle that it is not inflationary in that it merely grants increased compensation for increased productivity.

Generally, we find that employees on incentive will earn somewhere between 20 and 30 per cent above their base rates. So that in the case just mentioned the employer will have secured our approvable rates and then by placing employees on incentive, made it possible for them to earn somewhere between 20 and 30 per cent above our base rates.

We say that if an employer with a wage incentive comes to us and some of his rates are below our approvable rates but his earnings are above, we feel he should be treated in the same manner as an employer who first secured our rates and then got a wage incentive approved.

A comparison can be made in a very simple case of this sort. Let us suppose that the Regional War Labor Board has set a rate of \$1.00 as its approvable rate for a particular job. Let us also suppose that an employer who has no incentive plan is paying \$.90 an hour for his job and then applies to the Regional War Labor Board for permission to pay \$1.00. It is clear that the Regional War Labor Board will approve this application. Then let us suppose that this employer applies the next day for permission to install a wage incentive plan and, in light of a standard production of 100 pieces an hour, proposes to pay a penny a piece for all pieces in excess of 100. As I stated previously, we will generally approve a wage incentive plan based on such a formula.

Now let us also suppose that the employee involved steps up his production so that he turns out 125 pieces an hour and thereby earns \$1.25 an hour. Then let us take the case of an employer who has an incentive plan in existence and the piece rate this employer is

paying for the job involved is 90 cents an hour. However, let us suppose that in this case the earnings of the employe under an incentive amount to \$1.25 an hour or 35 cents above the base rate. Obviously, the incentive method involved in such a case would be "looser" than the one we approved in the preceding case. Consequently, if we were to allow that employer to increase his base rate from 90 cents to our approvable rate of \$1.00 and to pay this liberal incentive on top of the rate of \$1.00, we would be giving that employer a competitive advantage over the previous employer. On the other hand, if the employer's incentive method yielded only 25 cents or a total of \$1.15 an hour, it would be appropriate for us to allow him to increase the base rate from 90 cents to a \$1.00 which would place that employer on a parity with the one who first got his base rate increased to a \$1.00 and then submitted a wage incentive plan which we approved. In other words, we will generally allow increases in the base rates of wage incentive plans if the incentive plans in existence are no "looser" than those which we would approve. If they are more liberal, we have to take into account the degree of "looseness" in determining how much of an increase to allow in the base rates.

Again, while it is fairly simple to explain these policies, our difficulties arise in connection with their application.

I would like to conclude with the question of job evaluation. That is not directly related to wage incentives, but it is tied in with it, because, as a general rule, an employer will want to have jobs in his plant evaluated and properly classified before he introduces a wage incentive. The question of what the War Labor Board will approve in job evaluations has frequently arisen. Let us assume a case where no adjustment is possible under the 15 per cent formula and the rates paid by the employer who wants to

evaluate and classify his jobs are in some instances above and in some instances below our sound and tested rates. Now some people have said, "Will you merely allow him to bring up those rates which are below and deny him the right to adjust those rates which are above? If you do something of that sort, you will, first of all, create further inequalities in the plant and, of course, you will be of no assistance whatsoever in any effort to eliminate inequalities through job evaluation."

We are in favor of job evaluation. We think that it is a stabilizing influence within the particular plant and we will almost go out of our way to act favorably on a job evaluation application. On the other hand, we can't, obviously, approve a job evaluation plan which contains not only adjustments for the purpose of eliminating inequalities, but also a general increase unless that general increase meets the 15 per cent formula or any of our other tests.

We approach the problem frequently by saying we will require you to hold onto the rates you are paying for your common labor jobs and for your high skill jobs and that within the rates for the top and bottom of your structure we will allow you to draw a straight line, if you please, and slot jobs in their appropriate place within that structure. We will also require you to hold onto your hiring rates because we find that the hiring rates are significant in so far as the relative position of employers to compete in the manpower market is concerned. But within the framework of your low rates and your high rates, if you properly evaluate the in-between jobs, we will go along with such an application, even though in particular instances that might bring certain job rates above our approval rates. Of course, we have to be careful that the application does not push up all of the intermediate jobs into higher grades than are proper under a sound job evaluation.

MANAGEMENT PROBLEMS OF CONVERSION

ANNUAL CONFERENCE OF THE SOCIETY FOR THE ADVANCEMENT OF MANAGEMENT

December 3 and 4, 1943, WALDORF-ASTORIA HOTEL, NEW YORK

American Management—Observations as to Its Strengths and Weaknesses

THE HONORABLE HARRY S. TRUMAN, *Senator from Missouri*
Chairman Special Senate Committee to Investigate the National Defense Program

PERCY S. BROWN, *Presiding President*, The Society for the Advancement of Management

Management Problems Involved in the Renegotiation, Cancellation and Termination of War Contracts

ARUNDEL COTTER,
Tax Editor, Wall Street Journal

JOHN W. HOOPER, *Presiding Comptroller and Director*, American Machine and Foundry Company, Brooklyn, N. Y.

Reconversion Problems

MORRIS L. COOKE, *Presiding Consulting Engineer*

Problems of Post-War Readjustment

DONALD DAVENPORT,
Chief, Employment and Occupational Outlook Branch, Bureau of Labor Statistics, U. S. Department of Labor

Labor's Plan for Solving Post-War Problems

ROLLAND J. THOMAS,
President, International Union, United Automobile-Aircraft-Agricultural Implement Workers of America (UAW-CIO)

Industry's Plan for Reconversion

GEORGE W. ROMNEY,
Managing Director, Automotive Council for War Production, Detroit, Michigan

Discussion:

HERMAN FELDMAN,
Professor of Industrial Relations, Amos Tuck School of Business Administration, Dartmouth College, Hanover, N. H.

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First Vice President, In Charge of Production, Cluett-Peabody Company, New York, N. Y.

Manpower Utilization.

GLENN GARDINER, *Presiding Assistant to President*, Forstmann Woolen Company, Passaic, N. J.

Manpower Utilization—Now and Post War

BERNARD SLESS,
Acting Chief of Division of Manpower Utilization Region II, War Manpower Commission

How Labor Can Contribute to Manpower Utilization

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"The Buffalo Plan"—An Example of Manpower Utilization

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Planning as a Technique in the Solution of Conversion Problems.

GEORGE T. TRUNDLE, JR., *Presiding President*, Trundle Engineering Company, Inc., Cleveland

Forecasting the Management Problems of 1944

LEO CHERNE,
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Technics of Post-War Planning for an Individual Company

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CHARLES DALTON,
Director, Post War Policy Division, American Type Founders, Inc., Elizabeth, N. J.

Cost Reduction and Wage Incentives—War and Post-War.

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Works Manager, Eagle Pencil Company, New York

Cost Reduction Now for Post-War Competition

W. RANDLE MITCHELL,
Works Accountant, Bendix Aviation Corporation, Philadelphia Division

How to Reduce Costs by Effective Methods Studies

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Manufacturing Engineering Manager, Sperry Gyroscope Company, Brooklyn

What the War Labor Board Will Approve in Wage Incentives

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Chairman, War Labor Board, Second Region, New York

Discussion:

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REVIEWS

The Road We Are Traveling. By Stuart Chase, The Twentieth Century Fund, New York, 1942, pages 106. (\$1.00.)

Reviewed by N. I. STONE, *Consulting Economist, New York.*

"What will happen to you when the war ends? Must America have a postwar depression or is there a richer and finer future in the making?" In these words the book is summed up on the jacket of the little 16 mo volume.

The Twentieth Century Fund, in an effort to pierce the veil concealing from us the immediate future, has commissioned Mr. Chase "to make an exploration of the pressing questions we must face when peace returns." The present booklet is the first of a series of six which will follow in short order.

Stuart Chase is at his brilliant best in presenting economic problems in language that the man in the street can follow. He draws a fascinating picture of the fancied stability and solidity of our economic and social order in 1913 and what the first World War did to it.

Mr. Chase ascribes the severest depression in history to the closing of the frontier with the resultant decline in population growth which in turn resulted in a decline of opportunities for profitable investment. "Idle money in monetary systems always breeds idle men."

When a point is reached in a nation's economy of a permanent decline of opportunities for profitable investment in private enterprise, the only alternative to chronic depression is government in fields which do not attract private capital. "If slums are to be torn down, parks, playgrounds, schools, hospitals, improved, the government must do most of it" (page 69). Thus social capital increasingly takes the place of private capital as an employer of labor.

Another factor marking the gradual passing of the order of private enterprise as we knew it before the first World War, is the gradual disappearance of free competition, (page 71). Trade associations, cartels, trusts, etc., in attempting to maintain prices must resort to the curtailment of production. Thus, planning gradually supplants the free play of competitive forces which formerly governed economic activity in an impersonal, automatic manner.

Mr. Chase cites the estimate by the National Resources Planning Board of a loss of 100 million man-years of labor during the stagnation of the 1930's which resulted in the loss of 200 billion dollars' worth of potential goods and services "the equivalent of a \$6,000 house for every family in the country or enough to build the railroad system of the nation five times over" (page 88).

"Where's the money coming from" to accomplish this?" asks Mr. Chase and answers: "out of that 100 million man-years of work wasted; out of that 200 billion dollars of production which never was produced. It will come from the same place that the bombers, tanks, and battleships are now coming from—out of the full employment of the people" (page 93).

As a means of carrying out this program the author cites approvingly the recommendations of the National Resources Planning Board "that national income be held at 100 billion dollars with full employment; that a 40 hour week prevail; with young people and old people freed from work; that a modified

system of free enterprise be maintained, sustained at key points by government controls" (page 101).

Wartime Facts and Postwar Problems. Edited by Evans Clark, The Twentieth Century Fund, 1943, pages vii, 136. (\$.50.)

Reviewed by CHARLES E. NOYES, *Office of Civilian Requirements, War Production Board; Author of "Economic Freedom: A Democratic Program."*

The comprehensiveness of this small book is a little staggering to a reviewer, since it is intended as a guide to study over a considerable period of time, and not for reading in one or two evenings.

Eleven topics are covered in 119 pages of text and questions, each as broad as "International Relations" which is the first, and "Economic Security" which rounds them out. Among the other subjects are finance, labor, housing and education.

With so much to be said in so little space, the authors have wisely attempted to do no more than raise some of the most difficult questions which must be faced in each field, and sketch the most controversial opinions about these questions. An extensive and well-selected bibliography provides students with a guide to further investigation.

Inevitably, the quick presentation of the subjects seems a bit superficial in spots, particularly since the authors are fairly successful in avoiding partisanship. Perhaps it would be fairer to say that the booklet is directed toward classes and study groups which are just beginning to get into the field of postwar planning, rather than toward advanced students. As an introductory guide, it is lively enough to stimulate active discussion and further study. The general impression that all of the problems are a discouraging way from solution is the fault of the world, and not of the authors.

Punch In, Susiel By Nell Giles, Harper & Brothers, New York, 1943, pages xiv, 143.

Reviewed by MILDRED L. JUSTICE, *Director Women's Personnel.*

Perhaps this book will answer many questions which the 5 million housewives, whom Mr. McNutt is asking to go to work to help solve the manpower problem, may have.

Writing from the point of view of the "white collar girl" (as a staff writer of the Boston Globe), she tells, in a lively, conversational series of articles, what it is like to "punch in" on the time clock each day on a war job; how she had to learn to punch into the problems of factory work, and factory people. In a frank, humorous, yet serious way, with compact, quotable sentences, she takes you through all her experiences: how she is hired and trained "so that someone like me, with a week's training could sit at a bench and work a ratchet screw driver"; and how she learns to understand the deep satisfaction that one can have from manual labor which has a direct relation to the war effort.

Although her original purpose was to "write the glamor out of women in war," a touch of glamor creeps in frequently and reminds one of the women's pages. However, in contrast, there is no glamor whatever in the women appearing in the twenty delightful sketches by Alan Dunn.

In spite of her short time "punching in" on her war job Mill Giles has found time for all the problems: night shifts, cold lunches, absenteeism, transportation, pay checks, people, machines, and, to her great credit, the actual work itself on the various jobs she did.

The sincere interest in war work (we wish, however, that some one of the writers about a war job, would stick to it!) convinces one that, since "we are coming to the point where every able-bodied woman must do her part," this book may pack the right punch for some.

Economic Freedom. By Charles E. Noyes, Harper & Brothers, 1943, pages xv, 324.

Reviewed by HENRY DENNISON, *Dennison Manufacturing Company, Framingham, Massachusetts.*

Here is a book in layman's language which makes analytical comments upon our economic structure up to the war and looks ahead to some of the pressing post war problems. The author is positive in his equal rejection of reaction and radical socialism; he would be called "middle of the road," but rejects that overworked and underdefined term, also (page 15), as indicating too little flexibility.

He gives on page xiii the key to the reason for his book and to most of the political philosophy which underlies its suggestions:

"If democracy is to remain vital, there must be popular decisions all along the way. The people cannot abdicate their responsibility by delegating their authority to a leader or by choosing a single program and leaving its administration in the hands of elected officials. Plans are required, but they cannot provide a substitute for continuing public appraisal and determination of major policies."

The chapters divide the book's full range to suit the layman rather than the stricter scientist, and for the most part combine or mix analysis, author's views and proposals for future steps. It is, therefore, all the more readable, though vulnerable in several sentences to the criticisms of the economist,—for whom it was not written. Chapter IV—"Money, Credit, and Government Borrowing"—does an especially outstanding job in making the elements of that most difficult and vital subject clear to John Citizen.

It could be wished that Noyes had made his definition of democracy more specific. One may properly suspect that an author who uses the old weasel, "One of the best cures for the ills of democracy is more democracy," may not have followed through on his notions.

But after all, the book is more concerned with economics than with political science, and in this field the author's interest, unshackled by tight specialism, results in many suggestive statements which give one earnestly to think. Here are some as they run:

"A free commercial market cannot function efficiently as a mechanism for the distribution of goods except in an economy of scarcity. There can be no local banana market, for example, in a tropical country where the natives can find all the bananas they want on near-by trees."

"But prices of the products of mass production industries cannot move freely, even when there is no monopoly control, because too many elements of cost have become inflexible. It is, in fact, impossible to determine unit costs before prices are set, since unit costs depend upon volume of sales." (p. 31-32)

"And since a large part of the potential effective demand in the United States must consist of wages and salaries paid out by producers, the demand does not increase substantially until *after* production has been increased." (p. 52)

"The chief trouble with the present financial system as a method of social cost accounting is that it does not require the men who make business decisions to take all the cost factors into consideration. If their decisions result in unemployment, the major part of the expense is borne not by their companies' stockholders, but first by the unemployed themselves and eventually by charitable institutions or taxpayers." (p. 89)

". . . the country has not yet come to grips with the basic question of the public responsibility of corporation executives. The general approach to the subject is still predicated upon the increasingly fallacious assumption that large corporations represent private property and private enterprise. Yet to an observer who approached them without prejudice or preconception, it would be immediately obvious that a corporation is a social organism quite different from a compact business managed by its owner, and that the function of corporation management differs substantially from owner-management."

The author is no perfectionist. He asserts that large corporations do not represent private enterprise or private property, but he is not out to abolish them on that account. He calls the methods of business cost accounting crude from a social point of view, but "they are better than none," and it would be wasteful to try to discard them overnight.

His tolerant view of what can rightly be expected of men "trained in supervising the processes of production" is expressed as follows:

"Being untrained in modern economics, they can and do blandly ignore basic changes which spell the inevitable doom of the system they believe in, while they grow furious about relatively minor labor or political disturbances which require a slight readjustment of their habits. In most cases they should not be blamed for this myopia. It is a logical consequence of their concentration upon specific elements in the productive process, and there is no more reason to expect a broad view of economic problems from them than from anyone else. The fault lies with those in business and out of it who believe that 'meeting a pay roll' gives the ordinary manager some special insight into the general field of economics, even though he may be wholly ignorant of what economics is all about. Moreover, in business, as in other fields, Americans generally have a naive tendency to believe that a man who is good at one thing will be good at something else, and corporation executives are often appointed as a reward for achievements which give no indication that they are qualified to set economic policies." (p. 181)

The general trend of his program is not vague; it is evolutionary; to hold all possible the good of the past while working toward the mitigation or cure of its most dangerous evils—what might be the platform of a 1944 progressive. More vague is the essential element of timing. For the repeated insistence upon his dominant democratic role: ". . . but a satisfactory policy can be developed only when the people have been educated to see the basic issues and choose their course with full realization of its consequences"—argues slow motion; and is well supported throughout the book by suggestions for gradual rather than revolutionary changes. Meanwhile, speed is urged in several places: "Delay is the one tremendous danger in meeting the post-war problem" (p. 172); an imposing list o

post-war difficulties on page 189; and what might really be taken as a keynote paragraph:

"The basic question which the United States must face is precisely whether drastic reforms and improvements can be achieved promptly by democratic means within the framework of existing institutions, or whether the peacetime program will continue to be too little and too late until violent change becomes inevitable." (p. 146)

The book is a real contribution toward a rational view of many of the problems in the post war political economy; written in a style which laymen should be able to understand if laymen are to have a chance for their white alley in the post war world.

Business as a System of Power. By Robert A. Brady, New York, Columbia University Press, 1943, \$3.00, pp. XX, 340.

Reviewed by ORDWAY TEAD, *Editor of Economic Books,* Harper & Bros., New York.

This book deserves an extended essay of supplementary comment. The author is a scholar more preoccupied with a complete recital of facts than with a pointing of the moral or the offering of a program of prospective reform. This is an objective treatise, with occasional asides of the author's reflections.

Essentially, however, we have here a study of business beyond the level of a single corporation within one nation, in the form now becoming more familiarly known in our land as the cartel. The cartel is not one phenomenon; but as here considered it is an industrial association engaged in producing kindred products and doing this in collaboration across national boundaries.

The author is apprehensive (and rightfully) of the "system of power" which this creates. He has traced its growth in Europe. He reminds us of its growth here in America. Without expatiating upon its detail, one may say that here is a volume of first importance in the economic thinking, planning and creating of the next generation, because it deals with economic forces which necessarily cut across national lines.

It considers matters of which most Americans, even fairly sophisticated business executives, have been if not ignorant then at least innocent as to their implications.

It can be unreservedly recommended to thoughtful citizens, especially those economically minded. It is in the same camp as "Germany's Master Plan," but more profound, better documented, more comprehensive.

Everyone who wants to be aware of the realities of the problems of economic control as we go toward the peace, will have to cope with this book. It does not contain the answers—but it portrays a problem which is new to too many of us. It must not be slighted by those who would claim to be internationally minded in the next decade.

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